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Making A Killing: A Study of the Trade and Production of Arms

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I. INTRODUCTION

> *The true faith of an Armorer…[is] to give arms to all men who offer an honest price for them, without respect of persons or principles…to all sorts and conditions, all nationalities, all faiths, all follies, all causes and all crimes. You will do what pays us. You will make war when it suits us, and keep peace when it doesn't. You will find out that trade requires certain measures when we have decided on those measures. When I want anything to keep my dividends up, you will discover that my want is a national need. When other people want something to keep my dividends down, you will call out the police and military. And in return you shall have the support and applause of my newspapers, and the delight of imagining that you are a great statesman.*[1]
>
> -Andrew Underschaft, the armaments manufacturer
> in George Bernard Shaw's *Major Barbara*

In the mid-1990s, an arms deal was reached between the United Kingdom and Saudi Arabia that included the sale of cruise missiles manufactured by the British firm Marconi, a forerunner to BAE Systems, today one of largest arms-producing companies in the world. Twenty years later, in September 2015, the remnants of a cruise missile with Marconi labeling was found in the demolished remains of a Yemeni ceramics factory, the site of an airstrike that killed one civilian.[2] The airstrike, conducted by a Saudi Arabian-led coalition, was one of many in the current conflict in Yemen, a war in which airstrikes have not only caused the majority of the 2,600 civilian casualties, but also done enormous harm to the country's fragile infrastructure and economic development, with schools, hospitals, ports, and markets frequently serving as targets for the indiscriminant strikes.[3]

Western arms companies like BAE Systems are largely responsible for providing Saudi Arabia and its Gulf allies with the means to prosecute the war. Despite the

[1] Shaw (1917), 127-128, 143
[2] Amnesty International (2015)
[3] Bowcott (2015)

country's long record of human rights abuses and a recent "landmark" Arms Trade Treaty (ATT) in 2014, which prohibits countries from exporting arms that could "be used in the commission of genocide, crimes against humanity…attacks against civilian objects or civilians protected as such, or other war crimes," arms deals with Saudi Arabia continued unabated in 2015.[4] Indeed, since the onset of the conflict in Yemen that March, the UK has issued more than 100 export licenses to Saudi Arabia; those from January to June in 2015 alone were worth an estimated £1.75 billion.[5] Moreover, the United Kingdom is certainly not the sole supplier. In November of last year, the US State Department approved a $1.29 billion arms sale to Saudi Arabia, including as many as 13,000 smart bombs for use in Yemen.[6]

These deals are just a few of many that comprise the global arms trade, a multi-billion dollar business inextricably linked to economics, foreign policy, and human rights. Valued at $58 billion in 2012, the trade is both big and small.[7] Small, when compared to the size of the trade in some other goods—fuels, for instance, were valued at $3.4 trillion in 2012. Furthermore, when arms transfers are compared with the total value of global trade, they claim less than half a percentage point.[8] Nevertheless, these figures belie the enormous influence that arms transfers have on states and human wellbeing: in 1994, for example, shortly after the modern heyday of the arms trade, the Cold War, it was estimated that "a fifth of all developing-world debt was due to arms purchasing."[9] Other studies have found that "the arms trade contributes roughly 40 per cent to all corruption

[4] UNODO (2016)
[5] Bowcott (2015)
[6] Amos (2015)
[7] Bromley and Béraud-Sudreau (2014), 283
[8] WTO Statistics Database, accessed 3 December 2015
[9] Oxfam (2008), 10

in global transactions."[10] Clearly, arms transfers are part of an industry punching well above its weight class.

This thesis attempts to put arms transfers and the modern defense industry in historical context by identifying the drivers of change in the trade and production of arms over time. To this end, a review of the literature on the arms trade up to the Second World War comprises the first part of the study, presenting a largely qualitative overview of shifts in the flow of arms, the location of the world's arms-producing centers, and changes in attitudes towards transfers as they have affected the trade, using data when available. The second half of the study provides a data-driven analysis of trends in the international arms trade since 1950, the earliest year in which data was collected consistently. As in the previous half, its focus is on developments in the supply and recipient side of the market, in addition to the events that have impacted arms production. The final section of the thesis concludes by providing the policy implications of the findings.

As a final note before moving forward, it must be stated explicitly that this paper's focus is on major conventional weapons—artillery, tanks, aircraft, and ships, for instance—and not on small arms or nuclear weapons.[11] For variety, "arms," "defense equipment," and "weapons" are used interchangeably to refer to these major conventional weapons, with the exception of some portions of the pre-World War II history section.

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[10] Feinstein, Holden, and Pace (2011), 14; This is based on estimates originally presented by Joe Roeber for Transparency International in 2003. For an excellent overview of corruption in the arms trade, see his article: Roeber, J. (2005, August 28). Hard-Wired for Corruption. *Prospect Magazine*.

[11] For the complete list of the arms considered major conventional weapons in this paper, please refer to SIRPI's Arms Transfers Database coverage page:
http://www.sipri.org/databases/armstransfers/background/coverage/

II. A HISTORY OF THE ARMS TRADE

> *The social sciences, by taste, by deep-seated instinct, perhaps by training, have a constant tendency to evade historical explanation. It is up to historians, so say economists, to go back further than 1945, in search of old economies. Economists thus voluntarily rob themselves of a marvelous field of observation, although without denying its value.*[12]
>
> -Fernand Braudel, *On History*

Buying and selling weapons is not a modern phenomenon. Whether arrowheads, firearms, or modern aircraft, the exchange of arms is as old as humanity's propensity for conflict.[13] Indeed, in Andrew Feinstein's exposé of the arms trade, *The Shadow World*, which chronicles the increasingly sordid arms deals of the past hundred years, the author refers to the work of the politicians, government officials, and individual arms dealers complicit in the trade as part of "the second-oldest profession."[14] Although the record of arms transfers goes back at least to Thucydides' account of the Peloponnesian War in the fifth century BCE, this chapter seeks primarily to outline the more recent economic history of the trade.[15] Thus, after a brief overview of arms transfers in pre-modern times, the chapter will continue with an examination of the early modern period and subsequent centuries. It is during these eras that many features present in the today's arms industry first manifested themselves. The patterns and developments in the arms trade then and in the centuries thereafter can provide a framework for an analysis of the industry today.

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[12] Braudel (1980), 35
[13] O'Connell (1989), 23
[14] Feinstein (2011), 1
[15] Krause (1992), 34

THE EARLY ARMS TRADE

Prior to the mid-fifteenth century, the production of arms was largely the province of the state, with governments tending to enact policies restricting the export of arms. During the Roman era, for instance, the state controlled the production and distribution of materiel within the empire, and by and large trade between Rome and the populations outside the empire did not exist.[16] A variety of rulers and authority figures in later periods enacted similar export restrictions, acknowledging the danger inherent in supplying potential enemies with arms. From 768-814, high-quality Frankish armor was prohibited from being sold outside of Charlemagne's territory. In 971, the Doge of Venice, presiding at the time over what was arguably Europe's trading capital, banned the sale of arms to Saracens who were at war with Venice's Balkan neighbors. The Catholic Church, due to its involvement in the Crusades, also played a role in arms control by further prohibiting the sale of arms to Saracens in 1179 and at various other times in the thirteenth century.[17]

The reasoning for such restrictions were, as they are today, likely both political and strategic; clearly, there is some amount of risk involved in supplying a foreign power with the means to prosecute a war. In pre-modern times, prior to the advent of gunpowder in the fourteenth century and the frequent technological advances of subsequent centuries, which will be discussed in detail below, military innovation was very slow. Consequently, unlike today, countries couldn't rely on improvements in military technology to offset the strategic loss of exporting arms to foreign states. Selling a hundred suits of armor or two hundred spears abroad were three hundred pieces of military equipment that directly reduced the relative strength of the exporting state, and

[16] Krause (1992), 35
[17] Ibid.

which wouldn't become obsolete with the advent of a "newer" spear. In the words of one scholar on the arms trade, the "technology, materials, and skills necessary to build ships and arm men were relatively evenly distributed and widely known" such that "arms exports diminished one's potential arsenal and augmented that of likely (or actual) enemies."[18] Clearly, significant export bans and limited trade in arms is no longer the case today. As we will see below, the arms trade began to take its contemporary form in the early modern period, as the forces of globalization and technological advances in weaponry due to the military revolution changed the industry.

THE EARLY MODERN PERIOD

"Early modern times were indeed the infancy of the arms industry," write Helmuth Engelbrecht and Frank Hanighen in their study of the international arms trade.[19] During this era—indeed, to this day—Europe dominated the industry. Endowed with an impressive trade network from the heyday of mercantile giants Venice and Genoa, Italy, for some time up until the early to mid-fifteenth century, was "the most notable centre of arms production and transfers in the world."[20] Genoa, for instance, was a key crossbow manufacturer, while Milan enjoyed a position as one of the largest producers of armor.[21] Italy held this lead "as long as the race lay between ever more efficient crossbows and more and more elaborate plate armor," but the primacy of its armaments industry eventually fell to inferiority with the advent of firearms.[22]

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[18] Krause (1992), 34, 35
[19] Engelbrecht and Hanighen (1934), 16
[20] Stohl and Grillot (2009), 11
[21] McNeill (1982), 80
[22] Ibid.

The combination of military innovation, industrial developments, and strategic considerations drove production and trade centers to England and the Low Countries decisively by the late sixteenth and early seventeenth century. The city of Liége in Belgium, for example, would come to be "one of the largest and best-known arms centers in Europe," retaining its importance well into the eighteenth century.[23] The dominance of England and the Low Countries over other producers at the time and the ubiquity of arms in society was to such a degree that "virtually all European states and principalities purchased weapons from [these] two first-tier producers at some point in the period from 1450-1650."[24]

Notably, the English experience with the arms industry at this time in history is indicative of a broader and recurrent feature of the arms trade, namely, the importance of exports. As will be seen frequently throughout this thesis, access to foreign markets is often considered a sine qua non for a thriving domestic arms industry *in the long run*. Without the stable revenue from exports, arms manufacturers tend to struggle covering the high production and R&D costs associated with arms production, typically resulting in less competitive products, to the disadvantage of the home country of that company. The English example can help clarify this point. English cannons in the 1600s, for instance, were the envy of Europe, imported by Denmark, Holland, France, Flanders, Spain, and even India and Japan.[25] However, despite the testimony of English arms manufacturer John Browne in 1613 delineating the importance of foreign customers for

[23] Thayer (1969), 22
[24] Krause (1992), 44; Because Italy's arms industry was already on the decline at this point, the "two first-tier producers" Krause is referring to are England and the Low Countries (Liége, more specifically). Germany's relevance as a producer at this time is ambiguous, but due to "the great arsenal in Suhl…Germany should perhaps be considered…a first-tier producer."
[25] Ibid. 41, 43

his business, the unpalatable notion of supplying arms to potential adversaries coupled with the prevailing economic ideology of mercantilism led to the establishment of various English laws restricting the export of arms.[26] As Keith Krause writes, the net effect was to erode English dominance in the arms industry such that "by the late seventeenth century, England again depended almost entirely on imports of European arms," with Sweden taking up the mantle as the foremost supplier of cannons thereafter until the late eighteenth century.[27]

Other sovereign states, recognizing the national security risk posed by relying on foreign powers for arms, sought to establish their own defense industries, though with lesser success than their 'first-tier' competitors mentioned above. Russia, France, Spain, and the Ottoman Empire, for example, all encouraged the migration of skilled workers through state policies in the early modern period in an effort to develop their arms industries.[28] Unfortunately, despite the technological diffusion resulting from the new workforce, they all lacked some of the factors of production necessary for a robust and innovative industry, ranging from underdeveloped commercial infrastructure in the case of France to insufficient industrial production capacity and low levels of general economic activity in the case of Russia.[29]

Additionally, although arms production and military innovation was primarily a European affair during this era, the trade of weapons was not confined to the continent. Indeed, the early modern period also coincides with the increase in European trade associated with the Age of Discovery and the onset of globalization. England, for

[26] Krause (1992), 41
[27] Ibid. 42
[28] Ibid. 44
[29] Ibid. 46-47

instance, sent cannons to India and Japan in the 1600s, while Portugal, despite being a net importer of arms and only a marginal producer, utilized its large trade network to ship modern weaponry to Africa and Asia.[30] Ultimately, the proliferation of European armaments and the resultant technological diffusion throughout the world allowed states such as Turkey, India, China, and Japan to imitate these weapons, achieving some success as arms producers.[31]

Lastly, also fueling the trade and production of arms during this era was a level of technological advancement in weaponry previously unseen in history. The period of 1560-1660, in particular, has been referred to by historians as 'the military revolution', owing to the unprecedented changes in the landscape of warfare at the time, including the remodeling of battlefield tactics to accommodate the introduction of modern military equipment—gunpowder, firearms, and cannons.[32] These new armaments accelerated a shift that had already begun well before the 1500s with the advent of the crossbow, a weapon with "socially revolutionary implications" due to the ease with which unskilled lower-class soldiers could pierce the armor of upper-class knights.[33] In the case of firearms, however, the implications were even more severe, as armies equipped with older weapons could no longer rival with those armed with guns. Consequently, states scrambled to acquire the armaments:

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[30] Stohl and Grillot (2009), 13
[31] Ibid.
[32] For the seminal work on the topic, see Roberts, M. (1956). *The Military Revolution, 1560-1660: An Inaugural Lecture Delivered Before the Queen's University of Belfast.* London: M. Boyd. See also Parker, G. (1988). *The Military Revolution: Military Innovation and the Rise of the West, 1500-1800.* Cambridge: Cambridge University Press.
[33] Croft (1996), 24

> The gap that emerged in the fifteenth century between states that had perfected the use of gunpowder and linked new scientific discoveries to warfare and those that had not generated a growing, sometimes desperate demand to catch up so as not to be outgunned by enemies.[34]

Thus, so long as there were still states that had not yet acquired gunpowder-based armaments, the arms industry thrived and the trade of weapons remained frenetic. The process of technological diffusion continued throughout the sixteenth and seventeenth century, after which the volume of arms transfers slowed down again such that "for nearly 200 years [from 1650-1850] following the military revolution…the arms trade was relatively stable."[35] Crucially, this is not to say that the exchange of weapons ceased during this period; obviously arms continued to be transferred, but the combination of slow growth in military technology and stringent state controls on the production and export of arms during this period contributed to a situation in which, although the "weapons themselves continued to spread…no new centres of production arose, and the structure of the system that had manifested itself by the late 1600s was not fundamentally altered" until the mid to late 1800s.[36] Thus, it would not be until the technological improvements of the industrial revolution and the shifts in economic ideology of the time that the next great leap in the evolution of the arms industry would occur.

[34] Pearson (1994), 11
[35] Stohl and Grillot (2009), 13
[36] Krause (1992), 54

THE "MERCHANTS OF DEATH" ERA

Already by the late eighteenth century, mercantilism's appeal in Europe was beginning to wane. The seminal writings of Adam Smith and other early economists of the time encouraged the rise of laissez-faire economics, a doctrine that greatly bolstered the global arms industry as both political and moral barriers to the trade of weapons fell in favor of economic gain. The arms industry happily obliged this emerging environment of deregulation and limited government interference in private business; by the late nineteenth century, the stringent export controls of the past had relaxed and a freer market had taken root, leading arms manufacturers to eagerly pursue sales abroad.[37] Consequently, just as this period saw the rise of industrialist giants like Rockefeller, Carnegie, and J.P. Morgan, the weapons industry produced its own armament barons—the likes of William Armstrong, Eugène Schneider, Alfred Krupp, and Edward Vickers, among others, with the latter three distinguished by one historian as the "best-known arms manufacturers of the steam age."[38] Thus, during this period, the evolution of the production and trade of arms is best told through the experiences of private manufacturers.

William Armstrong's gradual entrance into the arms industry is an instructive starting point. First, despite advances in metallurgy and steam power during the industrial revolution, military technology in the mid-nineteenth century had in many ways not kept up with the times. In as late as 1854, for instance, during the Crimean War, "the British still relied largely on smooth-bore muskets only marginally different from those which had served them well since the last decade of the seventeenth

[37] Harkavy (1975), 34-35
[38] Collier (1980), 2

century."[39] After reading about the remarkably unwieldy cannons used by the English during the Battle of Inkerman, Armstrong, a respected engineer who had previously been contracted by his government to design underwater mines for the war, sought to develop an improved cannon.[40] The British government's decision in 1859 to purchase Armstrong's new gun instead of relying solely on state arsenals, as they had in the recent past, had a significant impact on the arms industry by revitalizing the private sector's interest in the manufacture and sale of arms.[41]

Already in 1862, however, partly in response to "cries from other manufacturers for open competition," the British government terminated its contract with the Elswick Ordinance Company, the armaments offshoot of Armstrong's engineering firm, and returned to procuring its artillery exclusively from the government's arsenal at Woolrich.[42] The company, having lost its sole customer in England, was devastated, and Armstrong resolved to sell his factory back to the government. Although government officials declined the offer, the British government did subsidize its domestic arms industry in much the same way arms-producing states do today: it compensated Elswick for the cancelled orders (to the tune of £65,000) and allowed the company to keep the plant.[43]

Still lacking a domestic consumer of armaments and stuck with a factory capable of producing fifty tons of guns per week, the Elswick Ordnance Company found itself in a position that all the other leading arms manufacturers of the late nineteenth century would find themselves in at some point. Unsurprisingly, like the others, Armstrong opted

[39] Collier (1980), 34
[40] McNeill (1982), 239; Collier (1980), 36, 40
[41] Krause (1992), 58
[42] McNeill (1982), 239-240; Collier (1980), 47; Krause (1992), 58
[43] Collier (1980), 49

to enter the international market in order to remain in business. In an era distinguished by a previously unheard of free market ideology, the decision proved propitious; by the late 1860s, Armstrong was selling his guns all over the world—to Egypt, Turkey, Italy, Chile, Austria, Denmark, Spain, the Netherlands, Peru, and both sides of the American Civil War, in addition to receiving an occasional smaller order on the side from the British government.[44] Not only did the company cultivate a global customer base, by the eve of the First World War, it had also expanded the array of armaments it produced and exported to include engines for warships, naval cannons, amour plating, and aircraft.

Notably, Armstrong's experience meandering into the arms industry, as well as his dealings with the government, was typical of the leading manufacturers of the industrial era. For several centuries after the military revolution, governments relied heavily on state arsenals for their military procurement and, although unintentional, also often avoided fostering any nascent private enterprise in arms production because of their protectionist policies. In an era of free markets and frequent technological advances, however, the prevailing attitudes towards international arms transfers shifted. Governments of leading arms-producing states determined that the private firm was more adept than the state at conducting the research and development necessary to create more advanced weapons—weapons that may give that government a crucial, though perhaps ephemeral, advantage in war. Indeed, "even technically proficient government arsenals like the French, British, and Prussian," one historian writes, "faced persistent challenge from private manufacturers, who were never loath to point out the ways in which their products surpassed government-made weaponry."[45]

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[44] Collier (1980), 48, 50
[45] McNeill (1982), 241

But, in order to cover the enormous costs incurred from the research, development, and production of new weapons, exports were needed by these private firms to provide them with a source of income more stable than the irregular domestic demand for armaments. As William McNeill explains, "ever since the breakaway of the 1850s, private arms manufacturers had prospered by entering the foreign market as a way of increasing their income and smoothing out peaks and valleys created by fluctuating home demand for their products."[46] Ultimately, from the perspective of the government, exports came to be seen as a necessary evil outweighed by the benefits of retaining domestic military innovation and arms production, a line of thinking that is still used today to justify foreign arms sales.

As suggested earlier, the rapid pace of innovation during the industrial age also made an impression on the arms industry. With the rate at which private manufacturers were able to improve their armaments increasing, competition among producers became very intense, a characteristic of the international arms trade that has only increased in the years since. In the words of another historian, for the arms industry, the period between 1870 and World War I was an "age of mergers, of determined and often successful attempts by arms manufacturers to increase their share of the market by devouring their rivals."[47] For instance, in 1897, Armstrong's firm would absorb one of its main competitors, the company of Joseph Whitworth, while other manufacturers did the same, buying out some companies and forming syndicates for market-sharing and price-fixing with others.[48] The result was that by the beginning of the twentieth century, Armstrong

[46] McNeill (1982), 291
[47] Collier (1980), 54
[48] See McNeill (1982), 290-292 or Collier (1980), 58-79 for a discussion on the various market-sharing agreements that existed at the time.

and Vickers were the only "two British armament firms comparable with Schneider et Compagnie in France and Friedrich Krupp AG in Germany," the companies of the other two great arms manufacturers of the industrial age.[49]

Thus, already by the end of the nineteenth century, due to the enormous output of these firms and the export-reliant nature of arms production, England, France, and Germany had become the foremost suppliers of arms in the world. To illustrate this point, alongside Armstrong, Vickers was the other "major pillar of British arms production," and the "pre-eminent international naval producer" between 1903 and 1912, exporting 33.9 percent of its naval armaments.[50] Together, these two shipbuilders cornered 63 percent of the market for naval defense equipment and warships from 1900 to 1914.[51]

Across the English Channel, it is estimated that of the 90,000 cannons produced by Schneider-Creusot from 1885 to 1914, roughly half were sold abroad, while the company's most notable domestic counterpart, the shipbuilding Forges et Chantier de la Méditerranée, exported 44 percent of its naval armaments between 1856 and 1899.[52] Put another way, by the end of the nineteenth century, France had sold arms to twenty-three countries around the world, including Russia, Spain, Sweden, Greece, Bulgaria, Serbia, Mexico, Chile, Japan, and the Transvaal region of southern Africa, to name a few.[53]

In Germany, the company of Alfred Krupp, known as "the Cannon King," also did much by way of producing and exporting arms in the latter half of the nineteenth and

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[49] Collier (1980), 69
[50] Krause (1992), 58
[51] Grant (2007), 145
[52] Krause (1992), 60; France was one of the last countries to eliminate its ban on arms exports in 1885. However, because this law was directed at artillery (see McNeill 240), Forges et Chantier de la Méditerranée was, as a producer of warships, able to circumvent this prohibition.
[53] Ibid.

first half of the twentieth century.[54] Less burdened by national export restrictions and similarly driven by the need to cover the enormous costs associated with arms production and research and development, Krupp had already gained a foothold in the international market by the time he received his first order from the Prussian government in 1859.[55] By 1877, over half of the nearly 25,000 cannons produced by the firm up to that point had been exported, and by 1914, Krupp weapons had been sold to a remarkable fifty-two states: twenty-three in Europe, eighteen in the Western hemisphere, six in Asia, and five in Africa.[56] By far, the biggest customers of Krupp artillery between 1854 and 1886 were Russia and the Ottoman Empire, together purchasing roughly half of the Cannon King's exports.[57]

Notably, the United States also made its arms industry debut in this era, although primarily through the production of small arms and, as we will see below, gunpowder. In fact, the work on firearms of several Americans in the second half of the 1800s would make them household names even today—the likes of Colt, Winchester, and Remington—men whose rifles were actively sought after all over the world. Indeed, by the end of the nineteenth century, England, Germany, Russia, Spain, Denmark, Sweden, Japan, Argentina, Chile, Peru, Mexico, Egypt, and Ottoman Turkey, among others, had imported the machinery necessary to produce these weapons.[58] Notably, the purchase of the means of production, rather than the finished rifles, is indicative of another diversion from the arms trade of the past, and remains an aspect of many arms deals today. That is,

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[54] Muhlen (1959), 47
[55] Ibid. 44
[56] Menne (1938), 150; Muhlen (1959), 109; Collier (1980), 62; Engelbrecht and Hanighen (1934), 83; More recent estimates (Sköns and Weidacher (2002), 325) determine that in the late nineteenth century as much as 86 percent of Krupp arms production was exported.
[57] Grant (2007), 25
[58] Engelbrecht and Hanighen (1934), 38-39

that "the key mechanism for technological diffusion was no longer the migration of skilled personnel," as in the early modern period, "but the licence or co-production deal, by which entire factories and production processes were transferred as branch plants."[59]

By means of gunpowder, the United States also made a substantial contribution to the international arms trade, with the nineteenth century world's largest powder-making firm, E. I. Du Pont de Nemours and Company, founded in America in 1802 by a French immigrant.[60] Although it did not produce the cannons and warships of its European counterparts, its patents and contributions to the global supply of gunpowder were substantial, and its experience in the arms business was nonetheless similar to other leading manufacturers of the time. The Du Pont company, for instance, epitomized the intense competition and pursuit of greater market share that characterized the arms industry in the industrial age, buying out one hundred competitors between 1903 and 1907 alone, sixty-four of which were immediately discontinued.[61] And, like the Krupps, Schneiders, and Armstrongs of the time, as Du Pont's powder-making activities expanded, so, too, did the company's list of foreign customers: by the end of the First World War, it had supplied the Allies with 40 percent of all the gunpowder they used during the war.[62]

That said, for the major conventional weapons this paper is primarily concerned with, although much of the world was still largely dependent on English, French, and German armaments, this did not preclude other states from attempting to develop their domestic arms industries. For example, Russia, Italy, Austria-Hungary (later

[59] Krause (1992), 64-65; The introduction of foreign experts in Japan as part of the Meiji Restoration serves as an exception to this trend.
[60] Engelbrecht and Hanighen (1934), 22-23
[61] Ibid. 34-35
[62] Ibid. 35-36

Czechoslovakia), and Spain had, by the outbreak of the First World War, met with some success in expanding internal arms production, while the industries of China, Japan, and the Ottoman Empire achieved less autonomy, even in light of large-scale government efforts to foster production.[63] A crucial distinguishing feature between these industries and those of the big three Western European producers was that the capacity to innovate (and, consequently, the ability to produce competitive goods) still lay firmly with the private firms of the latter group, not the outmoded state-run industries of the countries playing catch-up with the arms industry, who tended to rely heavily on the import of equipment and techniques from the leading manufacturers.[64]

Ultimately, the international arms trade witnessed several significant changes in the second half of the nineteenth century from the system that had dominated since the military revolution. Foremost among these was a shift in which countries were selling the world its weapons. More specifically, the technical advances of industrialization and the rise of laissez-faire macroeconomic ideology gave way to a new set of leading suppliers—namely, the private manufacturing giants of England, France, and Germany, which were now firmly at the helm of global arms production after having supplanted government reliance on state arsenals. Again, the assessment of William McNeill is instructive: "A global, industrialized armaments business thus emerged in the 1860s…[which]…quite eclipsed the artisanal manufacture of arms for international sale that had been centered in the Low Countries ever since the fifteenth century."[65] Ultimately, this oligopolistic organization of the arms trade would continue into the

[63] Krause (1992), 72
[64] Ibid. 64-70
[65] McNeill (1982), 241

interwar period and become even more acute, despite widespread popular condemnation of the arms industry prompted by the horrific slaughter of the First World War.

THE INTERWAR YEARS

For the arms industry, the period between the two world wars was in many ways a continuation of the system and trends that had taken root in the previous century. England and France, for instance, retained their positions as top global suppliers of arms, as did Germany by the mid 1930s, following slightly over a decade of relative adherence to the disarmament mandated by the Treaty of Versailles. Moreover, and somewhat surprisingly, the laissez-faire system of exchange that had governed arms transfers in the nineteenth century also survived the First World War in spite of growing public animosity towards the arms industry, its unscrupulous trading practices, and the subsequent establishment of export restrictions and government regulations aimed at reining in private manufacturers. At the same time, as we will see below, new producers began challenging the dominance of the English, French, and German armaments trio, including Czechoslovakia, Sweden, and the United States, among others. Thus, in the words of Keith Krause, "although the First World War marked a decisive historical discontinuity in many realms, the interwar international arms transfer system was characterised more by the continued evolution of the existing system, albeit distorted by the appearance of novel factors."[66]

First, as mentioned above, the extension of laissez-faire economic principles into the 1920s and 30s with regards to arms exports was one such evolution. In most cases for the majority of the interwar period, arms companies sold their wares abroad with little

[66] Krause (1992), 72

adherence to the political developments and strategic alignments of the time, as had been practice in the nineteenth century. Indeed, table 1 shows that rather than following prevailing alliance networks, arms transfers more typically occurred independent of diplomatic ties, with the majority of states in the international market procuring their military equipment from multiple suppliers, the expected outcome of the

Table 1: Interwar Arms Transfer Patterns, by Acquisition Style

Sole Supplier[a]		**Predominant Supplier**[b]		**Multiple Suppliers**[c]
Sole Supplier	*Recipient*	*Predominant Supplier*	*Recipient*	*Recipients*
United Kingdom:	Egypt	United Kingdom:	Australia	Guatemala
	Saudi Arabia		Canada	Loyalist Spain
	New Zealand		Ireland	South Africa
			Estonia	Belgium
			Greece	Czechoslovakia
			Iraq	Argentina
			Latvia	Austria
			Portugal	Bolivia
				Brazil
United States:	Cuba	United States:	Dominican Republic	Chile
	Haiti		Mexico	China
	Honduras		Colobmia	Denmark
			Nicaragua	Ethiopia
				Finland
Italy:	Albania	Italy:	Afghanistan	Iran
			Ecuador	Lithuania
			Hungary	Norway
			Paraguay	Peru
			Nationalist Spain	Romania
				El Salvador
		France:	Costa Rica	Sweden
			Poland	Switzerland
				Thailand
		Germany:	Bulgaria	Turkey
				Uruguay
				Venezuela
				Yugoslavia
				Netherlands

Notes: [a] All arms transferred to recipients were supplied by a single state.

[b] Sixty percent or more of arms transferred to recipients were supplied by a single state.

[c] No single state supplied over 59 percent of arms transferred to a given recipient.

Source: Robert E. Harkavy, The Arms Trade and International Systems, (Cambridge: Ballinger Publishing Company, 1975) 115, 104-105

freewheeling and 'casual' trade described above. American and German arms transfers provide further evidence: up until the late 1930s, the United States was still exporting arms to Germany and Japan, while at the same time "even the Germans…were selling arms to imminent victims such as Holland, Romania, Greece, and Yugoslavia right up to the eve of the war."[67] In the assessment of Robert E. Harkavy, author of what remains to this day the premier study of the interwar arms trade, "the looseness with which the governments of the interwar period allowed their arms traders to operate somewhat outside the mainstream of diplomacy up to the middle or late 1930s must be viewed as somewhat of an atavism, a remnant of a past era of less than total war."[68]

The survival of laissez faire trading practices is surprising considering the striking shift in public sentiment towards arms manufacturers during the interwar years, a development that has since come to characterize the arms trade of this period. A number of factors gave rise to this furor. Clearly, the unprecedented and senseless carnage of trench warfare still loomed heavy in the minds of many around the world. Indeed, much of the public outrage for the Great War was ultimately directed at the private arms manufacturers, whose aggressive and often heedless distribution of weapons in the decades beforehand was subject to great criticism.[69] The practices of these "salesmen and freewheeling entrepreneurs [who]…roamed the world, selling to all comers" were frequently scandalized, and not wholly without cause.[70] Krupp, for instance, never one to allow "his private interests to be affected by national animosities," vigorously and openly pursued sales to both Austria and France before their wars with Prussia in 1866 and 1870,

[67] Harkavy (1975), 33
[68] Ibid.
[69] Laurance (1992), 72
[70] Harkavy (1975), 35

respectively, even succeeding in the case of Austria, despite pleas for restraint from his home government.[71] Krupp's actions, though conspicuous, were not atypical of the industry. As George Thayer notes:

> World War I is full of examples of one nation finding its own weapons being used by its enemies. For instance, when Germany invaded Belgium, its soldiers were met by Belgians armed with German guns; when the Germans invaded Russia they were met by Russians armed with Krupp cannons; French troops in Bulgaria were bombarded by Bulgarians firing French 75's; Austria-Hungary, with its Skoda factory, faced Skoda guns in the hands of Russians. Even Switzerland, a neutral, helped this process: it sold electricity to both sides and allowed French material for the Germans and German material for the Allies to be exchanged through its territory.[72]

Perhaps more surprising is the testimony given in the mid 1930s by Admiral Sir Reginald Bacon during Great Britain's Royal Commission on the Private Manufacture of and Trading in Arms, one of two prominent government investigations into the activities of arms producers:

> I have seen it stated that British ammunition was used against our troops at Gallipoli. That is very likely–why should it not be? I think at that particular moment German ammunition was probably a little better than ours, but the main point is that, if they had

[71] Menne (1938), 94, 80-81, 90-93; Noel-Baker (1937), 54
[72] Thayer (1969), 29

not used English ammunition, they would have used German, which would have been to the disadvantage of our troops.[73]

The Great Depression likely also contributed to public distaste for the arms industry. In the words of Harkavy again, "it was probably not altogether accidental that heightened criticism of the laissez faire activities of arms makers occurred in the immediate wake of the Great Depression, when widespread doubts had emerged about the general viability of the capitalist system."[74] Reflecting this sentiment, the academic literature on the arms trade from the 1930s is replete with examples of arms industry exposés, muckraking pieces, and other attempts to shine light on the perceived 'evils' of the industry.[75]

Governments were consequently pushed into regulatory positions. Calls for nationalization and decreased arms production were met with the application of a variety of export controls such that "by the late 1930s, the governments of most or all major nations were monitoring and licensing arms exports."[76] The efforts of the League of Nations, through its various conferences on the matter and annual publication of the *Armaments Year Book* since 1924, bolstered these regulatory developments. Additionally, this period also saw the conception of end-user certificates, an export control still popular today in which the recipient country pledges not to re-export or

[73] As quoted in Thayer (1969), 32-33; The Nye Committee, which took place in the United States, was the other investigation.
[74] Harkavy (1975), 36
[75] See, for instance, *Merchants of Death: A Study of the International Arms Trade* (1934) by Engelbrecht and Hanighen, *Iron, Blood, and Profits* (1934) by George Seldes, or *The Private Manufacture of Armaments* (1937) by Philip Noel-Baker.
[76] Harkavy (1975), 37

otherwise transfer the arms it receives.[77] As one scholar on the international arms trade writes, "In short, the idea that 'arms are not refrigerators' was codified on a national and international basis" for the first time in the 1930s, and "the *moral* aspect of exporting arms…shifted from industry to government."[78] Notably, much of the renewed public concern over the arms industry today is not much unlike the criticism during the interwar period.

Nevertheless, many of these attempts at regulation were ineffectual. In the case of Great Britain, for instance, which was still one of the principal arms exporters in the world, "controls had apparently been circumvented almost at will, partly via transshipments through foreign subsidiaries."[79] And even if this hadn't been the case, the British government in the early 1930s "seems to have passed almost automatically on virtually all arms export license requests."[80] This situation is reflected in table 2 on the following page, where the United Kingdom's standing as an arms producer is unmistakable: with the exception of combat aircraft, the UK supplied over 25 percent of arms on the global market in all categories—and as much as 58.9 percent in the case of warships. Moreover, the persisting laissez faire approach to weapons transfers in spite of growing restrictions on the arms trade is further evidenced by European sales to China around the time of its civil war in the early twentieth century: as Keith Krause points out, despite the 1919 Arms Embargo Agreement "nominally adhered to by most

[77] Laurance (1992), 186; See also Bromley and Griffiths, *End-User Certificates: Improving Standards to Prevent Diversion* (2010)
[78] Laurance (1992), 186
[79] Harkavy (1975), 36
[80] Ibid.

suppliers…every major [arms] seller took advantage of the chaos in China to sell weapons there."[81]

Table 2: Interwar International Arms Trade Market Shares, by Supplier[a]

Country	1920-8 League of Nations[b]	1929-37 Sloutzki[b]	1930-39 Combat Aircraft[c]	1930-39 Warships[c]	1930-39 Tanks[c]
United Kingdom	28.6	25.0	17.3	58.9	26.1
France	22.0	10.7	15.6	10.1	27.9
Germany	—	10.9	9.5	—	4.1
United States	20.2[d]	9.9	22.8	2.3	14.7
Italy	1.8	3.7	12.7	17.8	10.9
Czechoslovakia	4.3	12.6	<2.2	—	6.9
Sweden	3.5	8.1	<2.2	—	3.1
USSR	—	—	5.6	—	5.6
Poland	—	0.1[e]	2.2	—	0.7
Japan	0.3	5.8[e]	<2.2	3.9	—
Netherlands	2.2	3.1[e]	3.0	—	—
Spain	3.7	1.5[e]	—	3.9	—
Belgium	1.7	5.0	<2.2	—	—
Others	4.0	3.6[e]	11.3[f]	3.1[g]	None

Notes:

[a] This table follows the structure found in Keith Krause, *Arms and the State: Patterns of Military Production and Trade,* (New York: Cambridge University Press, 1992) 74

[b] The League of Nations and Sloutzki calculations include only heavy equipment and small arms, excluding aircraft and naval transfers.

[c] Dashes in these columns indicate no contribution to the global arms trade for this category.

[d] The League reports the US share for this period as 27.9 percent, but, as Krause notes, the figure "is inflated by the inclusion of transfers from 1920, when the US accounted for 52.1 percent of global trends. This may be a statistical artifact." The figure reported in the table is the US share for 1921-8.

[e] League of Nations data used for these states. Sloutzki calculates 14.1 percent market share for "Others", which includes Poland, Japan, the Netherlands, and Spain, among others. The total market share of this group was subtracted from 14.1 to arrive at 3.6.

[f] Figure includes states above contributing <2.2 percent. Additional suppliers include Canada, Switzerland, Denmark, Yugoslavia, and Mexico, also each contributing <2.2 percent.

[g] Other suppliers include Portugal and Estonia, contributing <2.3 percent each, and collectively 3.1 percent.

Sources:

Column 1: League of Nations, *Statistical Yearbook of the Trade in Arms and Ammunition* (Geneva: League of Nations, annual, 1924-38)

Column 2: Nokhim Sloutzki, *The World Armaments Race, 1919-1939* (Geneva: Geneva Research Centre, 1941), 71

Columns 3-5: Robert E. Harkavy, *The Arms Trade and International Systems,* (Cambridge: Ballinger Publishing Company, 1975) 61, 74, 69

[81] Krause (1992), 74; See Chan (1982), 59-65 for a discussion on the extent of these arms sales.

Additionally, although temporarily absent from the international arms trade—and ostensibly in accordance with the Treaty of Versailles—Germany quickly returned to reclaim a considerable portion of the market. By 1929, it was the primary supplier of arms for thirteen states, and just a year later, twenty-two.[82] However, because much of Germany's arms production during this period was meant to build up its own military and consequently not exported, its contributions to the global arms trade as seen in table 2 belie the robustness of its defense industry. In fact, it was not long after the Paris Peace Conference that Germany began its clandestine process of rearmament: in addition to cannon and U-boat production in German-owned Swedish and Dutch firms, as well as subcontracting of arms production to Belgian, Swiss, and Spanish companies, hidden tank production within Germany itself began in 1928, while Krupp factories resumed production in 1933.[83] Nevertheless, Germany's partial withdrawal from the international market in concert with its subcontracting of production to foreign states help explain the increase in market share for countries like Sweden, Belgium, and the Netherlands, whose companies were busy filling German orders.[84]

A final feature in the table requiring explanation is the rather sudden emergence of Czechoslovakia as an arms-producing powerhouse. More specifically, between the 1920s and 1930s, Czechoslovakia's share of global arms transfers nearly tripled, rising from 4.3 percent to 12.6 percent. This increase was primarily due to the business of the country's Skoda Works firm, which, with support from the Czechoslovakian government,

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[82] Thayer (1969), 33

[83] Krause (1992), 77; Harkavy (1975), 33, 39-40; With "arms firms of opposing nations…normally intertwined by interlocking directorates and stock ownership," such interconnectedness was common in the arms industry in the late nineteenth and early twentieth century, ultimately becoming one of the chief concerns of critics of the arms trade writing in the 30s who "insisted on seeing something insidious in the multinational nature of the arms industry."

[84] Krause (1992), 77

in addition to enormous orders from Hitler's Germany, exported approximately 40 percent of its military output.[85] Ultimately, the growth of suppliers like Czechoslovakia, Sweden, Belgium, and the Netherlands served largely to displace the dominance inherited by the three principal producers of the pre-war era.

Lastly, table 3 on the following page shows Harkavy's dependence levels system, which illustrates the degree of autarky found in arms industries throughout the world during the interwar period. The table makes several features of the 1930s arms trade clear. First, the strength of German, British, and French military industries is reinforced: with the exception of French aircraft, all three states were at the forefront of research, development, and production in every category of armaments. In terms of changes from the prewar era, the table also reflects the ascension of Japan's defense industry, among others, from relative obscurity to international prominence, a fact that is also evident in the previous table, where it is shown that Japan's market share jumped drastically from 0.3 percent in the 1920s to 5.8 percent in the 1930s.

Perhaps most striking, however, is the emergence of the United States as a top-tier arms supplier, no longer just of gunpowder and rifles, but in all categories of weapons. American dominance in the aircraft industry was particularly strong, and foreshadowed its role as an aerospace giant through the post-war period and into the twenty-first century. For instance, in addition to its role as the foremost supplier of combat aircraft from 1930-39 (table 2), the United States also claimed 42.8 percent of the market for helicopters and over half of the market for transport aircraft (53.6 percent) in the same period.[86]

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[85] Krause (1992), 75; Thayer (1969), 34
[86] Harkavy (1975), 64, 67

Table 3: Summary of Interwar Dependence Levels, by Weapons System

Weapons System	Level	Countries
Aircraft	1	Germany, United Kingdom, United States
	2	France, Poland, Netherlands
	3	USSR, Japan, Sweden, Czechoslovakia
	4	Canada, Spain, Yugoslavia, Belgium, South Africa, Switzerland, Denmark, Norway, Greece, Romania, Thailand
	5	China, Australia, Argentina, Brazil, Hungary, Mexico, Turkey, Austria, Chile, Bulgaria, Finland, Lithuania
	6	All remaining nations
Naval	1	United States, Germany, United Kingdom, France, Italy, Sweden, Netherlands, Denmark, Norway
	2	Japan
	3	USSR, Spain
	4	Australia, Argentina, Yugoslavia
	5	Brazil, Turkey, Finland, Portugal
	6	All remaining nations
Armor	1	United States, Germany, United Kingdom, France, Italy, Czechoslovakia
	2	Japan
	3	USSR, Sweden, South Africa
	4	Poland, Switzerland, Hungary, Austria
	5	Netherlands, Yugoslavia, Belgium, Romania
	6	All remaining nations
Small Arms	1	United States, Germany, United Kingdom, USSR, France, Italy, Sweden, Belgium, Czechoslovakia, Switzerland, Denmark
	2	Japan
	3	Australia, Poland, Netherlands, Yugoslavia
	4	Canada, Spain, Argentina, Austria, Finland, Portugal, Romania, Iran
	5	China, South Africa, Hungary, Mexico, Turkey, Norway, New Zealand, Bulgaria
	6	All remaining nations

Note: Harkavy's dependence level system separates states into six categories according to their capacity to produce arms independently. In the words of the author, these separations should not be considered "discrete compartments" as much as arbitrary breaks belonging to a "graduated and complex continuum running from total independence to total dependence." The levels decrease in terms of 'armaments-autarky', with level 1 "referring to complete independence in research and development as well as production for given weapons systems," all the way down to level 6, describing nations that have "no production facilities, much less research and development capability...usually, no such capability has ever existed."

Source: Robert E. Harkavy, *The Arms Trade and International Systems,* (Cambridge: Ballinger Publishing Company, 1975) 192, 184-187

What is not clear from either table, however, is the massive transformation of the Soviet arms industry by the late 1930s. Military production levels increased drastically

between 1930 and 1939, even by a factor of ten in the case of aircraft.[87] Much of this occurred not through private innovation but by the copying of foreign arms deliberately purchased in small quantities so they could be reproduced domestically on a large scale. Nevertheless, these developments foreshadowed the role the USSR would play alongside the United States as a chief supplier of arms in the post-war world.

[87] Krause (1992), 78

III. 1950 TO PRESENT: A STATISTICAL OVERVIEW[88]

> *The founders of the modern military-industrial complex were not a great deal different in their motives than the latter-day board chairman of Lockheed or General Dynamics, nor did they necessarily part company with the military inventors who preceded them.*[89]
>
> -Robert O'Connell, *Of Arms and Men*

THE COLD WAR

Along with the rest of the world, the international arms trade entered a new era following the Second World War. With the Soviet Union and United States at the helm, a bipolar and ideologically charged system superseded the freewheeling arms transfer arrangement that had developed and matured during the steam age. Fortunately, relative to previous periods, a wealth of data has been collected on arms transfers since 1950. This section will consequently provide a much more data-driven analysis of the period in question, focusing in particular on four striking trends that emerge from the data on the Cold War arms trade: first, the shift in the world's top suppliers, already mentioned above; second, the tremendous increase in the volume of weapons transferred; third, the shift in the recipient market towards the developing world; and fourth, the drastic increase in the cost of the arms themselves, a trend which had already begun under the previous system.

Beginning with the first trend, table 4 on the next page shows the extent of Soviet and American dominance of the supply side of the market. Individually, these two states

[88] Unless otherwise cited, values and figures in this section are based on author's calculations using data from SIPRI's Arms Transfers Database. Additionally, unless otherwise noted, all dollar values in tables and figures from 1950 to present that use the Stockholm International Peace Research Institute's (SIPRI) Arms Transfer Database as their source are in SIPRI Trend-Indicator Values (TIV), which do not necessarily reflect the actual total cost of an arms deal. Rather, SIPRI uses TIV to assign values to arms transfers based on the combined unit costs of all weapons systems delivered. TIV consequently serve as a common unit for identifying and comparing trends in arms transfers across time and regions. For a more complete explanation of SIPRI TIV and the data used in this section, please see Appendix A.

[89] O'Connell (1989), 195

supplied at least a third of all the arms on the international market throughout the Cold War. The only exception to this was the United States in the 1980s, during which it contributed 29.7 percent to global exports. Nevertheless, together, the two superpowers cornered well over 60 percent of the market in each decade from 1950 through 1980. At

Table 4: Cold War Market Shares Per Decade, by State

Country	1950-59	1960-69	1970-79	1980-89
Soviet Union	34.2	39.3	38.0	36.1
United States	35.2	37.8	35.1	29.7
United Kingdom	21.4	6.7	5.9	6.2
France	2.3	5.6	6.9	7.6
West Germany	0.1	1.7	3.8	4.2
China	0.5	1.4	2.0	3.7
Czechoslovakia	3.4	1.6	2.0	2.7
Italy	0.6	1.0	1.5	2.3
Netherlands	0.4	0.5	0.6	1.3
Switzerland	0.0	1.5	0.6	1.0
Sweden	0.5	0.2	0.4	0.6
Poland	0.0	0.8	0.8	0.5
Canada	1.0	0.7	0.6	0.4
All Others	*0.4*	*1.0*	*1.8*	*3.8*
Total	100.0	100.0	100.0	100.0

Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

the height of their market power in the 60s, they supplied 77.1 percent of all internationally traded arms. At their lowest point in the 1980s, they supplied 65.8 percent. For both superpowers, arms transfers during the Cold War served as one method to influence the balance of power between communism and capitalism in the contested areas of the world, pushing both states to maintain their high market shares.

Other major suppliers at the time included the United Kingdom, France, and West Germany, whose historical capacity for arms production had not been wholly erased by

the destruction of the Second World War. In fact, although much of Europe's infrastructure, housing, and industrial equipment had been devastated, its industrial capacity remained largely intact. As one economic historian has noted, "the speed with which physical damage could be repaired was a lesson of the Allied experience with strategic bombing, the impact of which on enemy war production had been less than anticipated."[90]

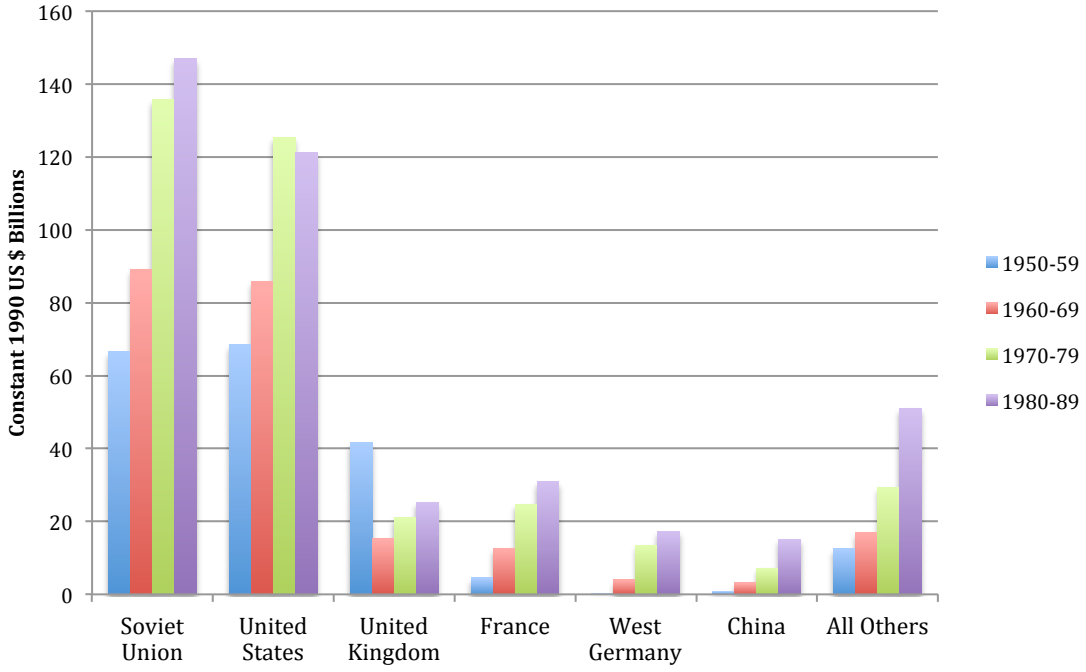
Indeed, as shown above in table 4, England was still able to supply 21.4 percent of arms on the global market in the aftermath of the war during the 1950s. By the next decade, the UK remained the world's third largest arms producer, despite the fact that its share of global exports had dropped by more than half. In addition to the increases in Soviet and American exports, England's loss of market share is also at least partially attributable to the resurgence of other European producers. France's arms industry, for instance, quickly rebounded in the decades following 1945 and was by the 1960s supplying 5.6 percent of arms on the international market. West Germany's market share rose during this period as well, although to a lesser extent. Notably, unlike its French and British counterparts, the German arms industry in the 50s and 60s was kept small, supplying primarily its own *Bundeswehr* and operating under stringent export restrictions, in part due to political fiascoes arising from sales to the developing world, and in part a result of "memories of militarism, the Krupp empire…[and] the heritage of the Second World War."[91] Nevertheless, by the mid 1970s, many of these constraints on exports had been loosened as a result of economic and political pressures, a fact reflected

[90] Eichengreen (2008), 52
[91] Brzoska and Ohlson (1987), 89; Pierre (1982), 111

in the rise in Germany's market share for that decade.[92] Ultimately, these five producers—the Soviet Union, United States, United Kingdom, France, and West Germany—together claimed an astounding 93.1 percent of the international market in the 1950s. By the 1980s, this figure had decreased by only 10 percent to 83.8 percent.

Accompanying the table is figure 1, seen below, which shows the total value of arms exports by state for each decade of the Cold War. As revealed in the figure,

Figure 1: Cold War Arms Exports Per Decade, by State



Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

although Soviet and American market shares peaked in the 1960s, the total value of their arms sales did not. In fact, at its height in the 1980s, the USSR sold nearly $147 billion worth of arms to around 40 foreign states,[93] more than double the $67 billion it had sold in the 1950s. Furthermore, with the exception of the 1950s, the Soviet Union sent more

[92] Brzoska and Ohlson (1987), 89
[93] Turner and SIPRI (1985), 69

weapons abroad in terms of value than the United States in each ten-year period, with the gap widening considerably by the 70s and 80s. US exports, more specifically, peaked in the 1970s at $125 billion, slightly less than twice the $68 billion it had sent abroad in the 50s.

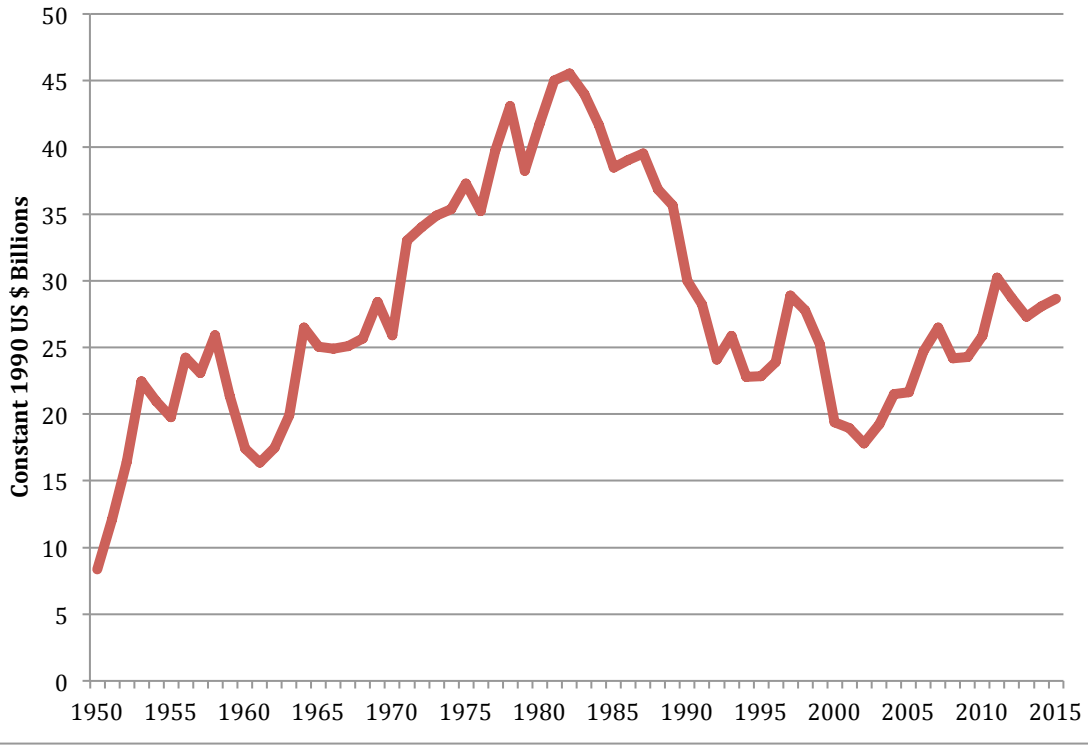
The tendency for the volume of arms exports to increase as the Cold War intensified was not unique to the Soviet Union and United States, but was rather the general trend for all major suppliers of the time. France, for instance, increased exports by a factor of over six—from roughly $4.5 billion in the 1950s to over $30 billion by the 1980s—while China and West Germany both went from exporting less than one billion dollars worth of arms in the 1950s to 15 and 17 billion, respectively, by the 80s. China, consequently, was by this time also a significant arms-producing state, even if the majority of its weapons were often considered badly outmoded.[94] As shown previously in table 4, by the 1980s, China was the world's sixth largest supplier, providing 3.7 percent of arms on the international market.

This tremendous increase in exports across all major suppliers during the Cold War is the second trend evident in the data on global arms transfers. On the following page, figure 2 traces the total volume of the arms trade in billions of dollars since 1950. Beginning at just over $8 billion, exports rose sharply in the early 50s and then again in the 70s, ultimately peaking in 1982 at nearly $46 billion. From then until the second half of the 90s, the global diffusion of weapons slowed down substantially. By 1991, the year of the Soviet Union's collapse, arms exports had fallen to just over $28 billion. Some explanation for this enormous growth in arms transfers can be found in the final two

[94] Pierre (1982), 225

trends of the Cold War arms trade, which concern the third world's increasing demand for arms and the soaring cost of the weapons themselves.

Figure 2: Global Arms Exports, Annual Data 1950 - 2015



Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

The skyrocketing volume of arms exports during the Cold War illustrated above begs the question: who's importing all of these weapons? Table 5 shows the top ten arms importers for each 10-year segment of the Cold War and provides some preliminary results. Starting with the 1950s, it is apparent that weapons at that time were primarily traded amongst the arms-producing states themselves, as has historically been the case. In other words, when the top ten importers of the 1950s from table 5 are compared with the world's top producers from table 4, it is evident that these are by and large the same

Table 5: Top 10 Cold War Arms Importers, by State

Period	Rank	Country	Imports ($ Billions)	Percent Total
1950-59	1	China	27.7	14.2
	2	United States	12.4	6.4
	3	France	10.5	5.4
	4	Poland	9.2	4.8
	5	Canada	8.6	4.4
	6	West Germany (FRG)	7.9	4.1
	7	Czechoslovakia	6.8	3.5
	8	Soviet Union	6.5	3.3
	9	Netherlands	6.0	3.1
	10	Belgium	5.5	2.8
		Others	*93.6*	*48.1*
		Total	194.6	100.0
1960-69	1	West Germany (FRG)	23.6	10.4
	2	Egypt	10.5	4.6
	3	India	10.1	4.4
	4	Poland	9.7	4.3
	5	East Germany (GDR)	9.2	4.0
	6	United Kingdom	7.0	3.1
	7	Czechoslovakia	6.8	3.0
	8	Japan	6.7	2.9
	9	Canada	6.6	2.9
	10	Italy	5.5	2.4
		Others	*131.3*	*57.9*
		Total	226.8	100.0
1970-79	1	Iran	28.5	8.0
	2	Libya	18.0	5.1
	3	Syria	15.3	4.3
	4	India	14.9	4.2
	5	West Germany (FRG)	13.5	3.8
	6	Israel	13.4	3.8
	7	Egypt	12.8	3.6
	8	Iraq	10.6	3.0
	9	Japan	10.2	2.9
	10	Poland	9.8	2.8
		Others	*209.7*	*58.8*
		Total	356.8	100.0
1980-89	1	India	30.5	7.5
	2	Iraq	29.9	7.3
	3	Japan	17.8	4.4
	4	Saudi Arabia	16.1	4.0
	5	Syria	15.2	3.7
	6	Egypt	12.7	3.1
	7	Libya	12.5	3.1
	8	Soviet Union	10.7	2.6
	9	South Korea	8.9	2.2
	10	Netherlands	8.6	2.1
		Others	*244.6*	*60.0*
		Total	407.5	100.0

Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

states. Collectively, this group of ten accounted for just over half of all imports during the 1950s.

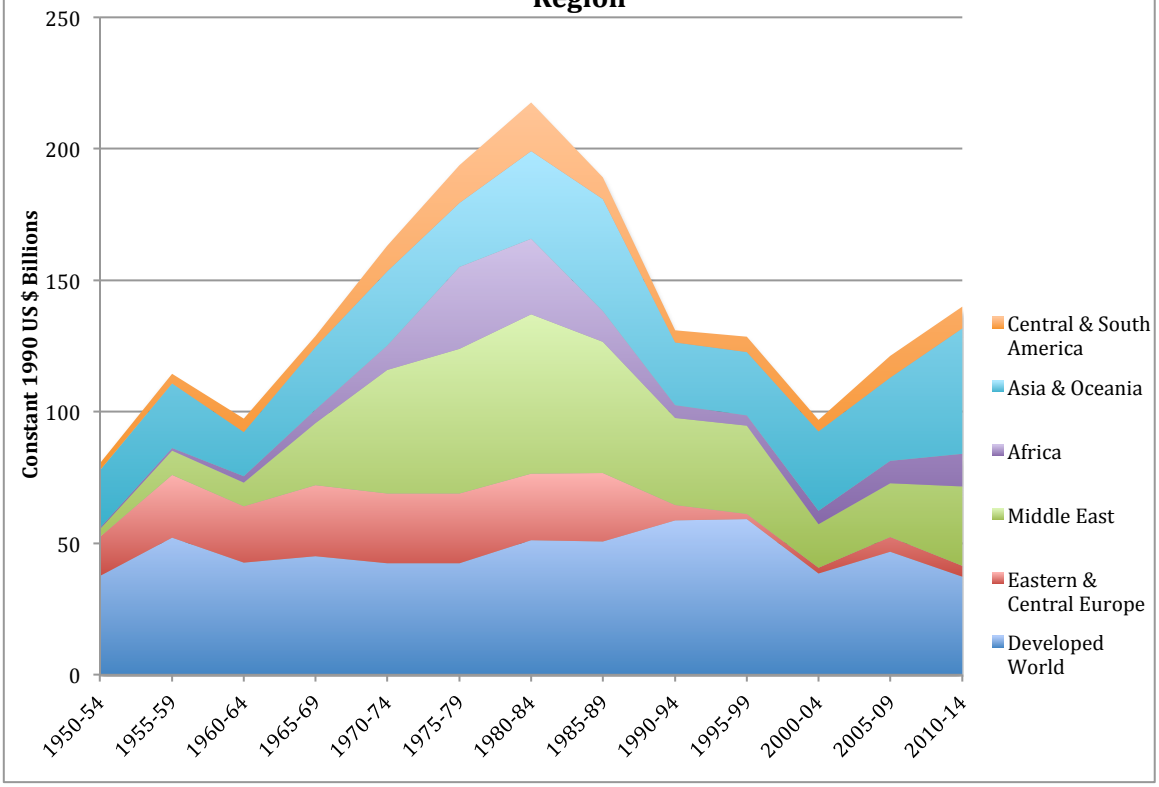
Notably, China, the biggest recipient of all during this period, was responsible for 14.2 percent of all imports, more than twice the amount of arms taken in by the United States, the world's second largest importer at that time. By way of explanation, in the early to mid 50s, China was a major beneficiary of Soviet military aid. But, after its relations with the USSR deteriorated at the end of the decade, so did the bulk of Chinese arms imports—not only did the flow of Soviet military equipment cease, China also lost somewhat its access to Western armaments as the governments of these countries became wary of the consequences their exports to China may have on inciting conflict between the USSR and China, or between the USSR and the West itself.[95] The minimal amount of arms the Chinese did import during the rest of the Cold War was used primarily for the purpose of building up their own defense industry: as Frederic Pearson writes, China apparently "sought to import foreign weapons mainly in order to better perfect its own domestic designs, which it then reexports," historically a popular strategy among states playing catch-up with the arms industry.[96] Ultimately, although China remained a minor player in the arms trade throughout the 50s, 60s, and 70s, its role grew substantially in the 80s as a result of economic and political changes.[97]

By the 1960s, the beginnings of a shift in the demand side are visible in table 5. Although top arms-producing states such as West Germany, the United Kingdom, and Czechoslovakia were still among the world's largest importers, the ten largest recipients accounted now for just over 40 percent of total imports; clearly, other states were

[95] Pierre (1982), 225-228
[96] Pearson (1994), 49
[97] Brzoska and Ohlson (1987), 83

becoming more important consumers of arms. Indeed, the rise of Egypt and India as the world's second and third largest recipients in the 1960s is indicative of the emergence of the developing world as a key area for foreign arms sales. By the 1970s, the only remaining major arms-producing state on the list of top importers was West Germany, with 3.8 percent of the world's imports. In both the 70s and the 80s, developing countries—in particular, Middle Eastern and North African ones such as Iran, Iraq, Libya, Syria, Egypt, and Saudi Arabia—became the arms-producing world's biggest foreign customers.

Figure 3: Total Value of Arms Imports Since 1950, Stacked by Region



Note: For the countries included in each region, please see Appendix B. Additionally, the reader is asked to note that the 'Developed World' in this figure includes the 37 countries considered "advanced economies" by the International Monetary Fund, although the Czech Republic, Estonia, Israel, Latvia, Lithuania, Slovakia, Slovenia, and South Korea are only included in this 'region' for observations after 1989.

Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

On the previous page, figure 3 decomposes all documented arms imports during the post-war period by region, showing changes in the flow of arms over five-year intervals. Notably, the trend suggested by movements in the top ten importers of each decade, as described earlier, is confirmed by the figure. Thus, the third trend of the Cold War arms transfer system, and the most striking feature of figure 3, is the emergence of developing countries—the "third world," as it is referred to in most contemporary studies of the period—as buyers of primarily Western and Eastern Bloc arms.

Throughout the post-war era, imports by the developed world and Eastern & Central Europe remained relatively flat as compared with other regions. From 1955 through 1989, for example, the developed world steadily imported between 45 and 60 billion dollars worth of arms over each five-year period. Eastern & Central Europe, after increasing its intake of arms from approximately $15 billion to $27 billion between 1950 and 1964, remained even flatter: from 1965 through 1989, its imports over each five-year period hovered within 1 billion of $26 billion, with the lion's share of the armaments flowing either to the Soviet Union or from there to its satellite states—Bulgaria, Romania, Czechoslovakia, East Germany, and Poland, to highlight a few notable recipients. Thus, it is unsurprising that the collapse of demand for arms in this region corresponds to the demise of the Soviet Union at the end of the Cold War in 1991.

In the rest of the world, demand for military equipment exploded. Foremost among the consuming regions was the Middle East, which, with its newfound oil wealth and a host of incessant regional rivalries (Israel and Egypt, Iraq and Iran, for instance),[98] went from importing only $2.7 billion of arms in 1950-54 to more than 20 times that

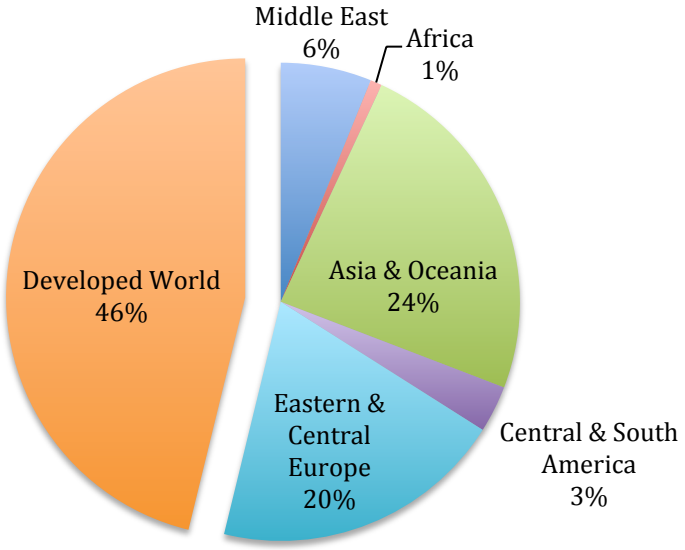
[98] Stockholm International Peace Research Institute, *The Arms Trade with the Third World*, (1975), 201-202

amount (over $60 billion) at its height in the first half of the 80s. Asia, Africa, and Latin America followed suit: in Asia & Oceania, for instance, imports nearly doubled from $22 billion in the early 50s to $43 billion in the second half of the 80s. Central & South America also peaked in the 80s at roughly $18 billion, six times the $3 billion it had imported in the first half of the 1950s. Astoundingly, African arms imports, which were valued at less than half a billion dollars in the period 1950-54, soared to over $31 billion by the second half of the 70s.

On the following page, figures 4 and 5 reinforce this trend of rapidly increasing developing world demand for defense equipment (as well as the *relative* decline of Western and Eastern bloc imports) by showing the arms imported by each region as a percentage of the total near the start and end of the Cold War. As seen in the figures, the developed world, which was the recipient of nearly half of all exports in the 1950s, was by the 1980s the destination of only 27 percent of arms. Similarly, the Eastern Bloc's share of imports also declined, falling from 19 percent to just 12 percent over the same period. At the same time, the rest of the world's share of defense imports grew from 34 percent to over 62 percent—nearly two thirds of all arms transfers in the 80s. Notably, the Middle East, at 27 percent, was in the 1980s the destination for more foreign-based armaments in terms of value than the developed world.

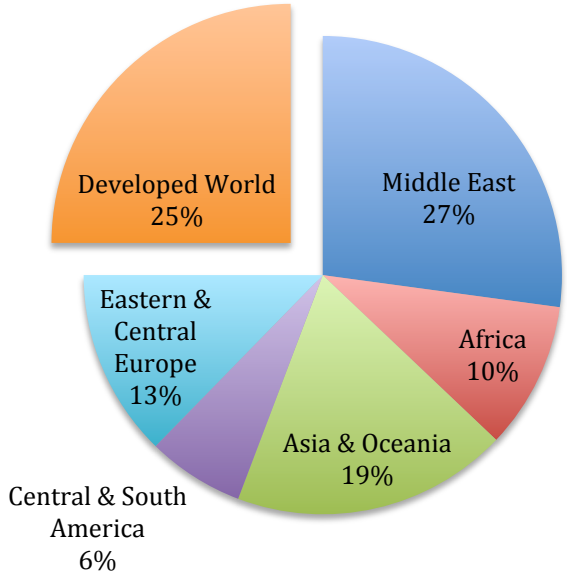
Several factors likely fueled the developing world's demand for arms. Certainly, the intense ideological rivalry between Soviet communism and Western capitalism, the defining characteristic of the period, was a leading contributor. Throughout the Cold War, both sides eagerly peddled their arms to contested countries in the developing world in an effort to advance their cause. To make this idea more concrete, between 1980 and

Figure 4: Cold War Arms Imports, by Region 1950-59



Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

Figure 5: Cold War Arms Imports, by Region 1980-89



Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

1985, the Soviet Union and United States together supplied some 119 countries with arms.[99] In fact, as Rachel Stohl and Suzette Grillot write, "the Soviet Union was so eager to cement favourable military relationships with its allies and fill their arsenals with Soviet defence equipment that some analysts estimate up to two-thirds of all Soviet arms exports were provided either free or on credit."[100] Thus, for the world's two superpowers, sending weapons instead of troops allowed them to prop up ideologically sympathetic governments (or support the guerrilla movements against unfriendly ones) while avoiding the direct military engagements that could turn the Cold War hot. Both sides, in other words, saw arms transfers in the post-war period as a convenient tool for achieving political goals. Referring back to figure 2 (page 35), this provides one explanation for the explosion of transfers in the 50s and, in particular, the 70s. Indeed, as the policy of détente took over US-Soviet relations in the 1970s and direct tensions between the two superpowers diminished, it appears that both states took the liberty of escalating their rivalry indirectly by increasing their arms transfers to the third world.

Complementing this was the process of decolonization, which provided the world with numerous newly independent states throughout the twentieth century. As primarily developing countries, these states typically had little domestic arms production capacity, but were now nevertheless responsible for their own national defense. As a result, decolonized states were often left with no choice but to import their arms. Several of these states found their way to the top of the importing list in table 5, shown earlier. India, for instance, which gained independence from Britain in 1947, was by the 1960s among the five biggest arms importers in the world. In the 1980s, it was number one.

[99] Turner and SIPRI (1985), 69
[100] Stohl and Grillot (2009), 47

Similarly, much of the Middle East and North Africa—the likes of Libya, Syria, Iraq, and Egypt—which crowded the list of top importers in the latter decades of the Cold War, were all decolonized before or shortly after the end of the Second World War.

A final post-war development contributing to this demand for arms is the increasing frequency of both intra and interstate conflict. This phenomenon is well documented.[101] The incidence of civil wars, in particular, has increased significantly since World War II, the vast majority of which have "occurred in the recently decolonized, or postcolonial, regions of Africa, Asia, and the Middle East, and to a lesser extent in the Caribbean and in Central and South America."[102] Indeed, research has shown that not only was the incidence of civil wars in 1990 nearly four times higher than levels in 1950, the average duration of these conflicts has increased as well.[103] In terms of interstate conflicts, one needs only to look to the various ethnic schisms, border disputes, or struggles for regional power that have populated the years since World War II, many of which remain unresolved to this day. Israel and Egypt in the 1960s and 70s, Iran and Iraq in the 80s, or the ongoing border disputes between India, Pakistan, and China are just a few examples of conflicts which fueled demand for the latest weapons.[104]

Lastly, the fourth trend that will be discussed in this section is the skyrocketing price of arms since the end of the Second World War. Indeed, according to Maurice and Pearton, "since 1945 the most striking characteristic of modern weapons production has been its ever increasing demand on funds."[105] Again referring back to figure 2, this

[101] See, for instance, Collier et al. (2003), Hegre (2004), Collier and Hoeffler (2007), or Henderson (2008).
[102] Henderson (2008), 260; See Collier et al (2003), 112-115 for a breakdown of the incidence of civil wars by region.
[103] Hegre (2004), 243-244; Collier et al (2003), 82
[104] For a more exhaustive list of Cold War conflicts in the developing world (up to 1979), see Whynes (1979), 17-20.
[105] Stanley and Pearton (1972), 5

fourth trend provides another general explanation for the tremendous increase in volume of arms exports during the Cold War (as well as its resurgence since the late 1990s, which will be discussed in the next section). As production and R&D costs soar, so does the burden on firms' budgets, many of which are consequently pushed into pursuing export sales to compensate. Indeed, from previous sections, we know this is historically the arms industry's first line of defense. In the words of the same scholars as above, "today, the remorseless upward march of costs has made an export market almost a *precondition* for the development of an expensive weapon."[106]

On the following page, table 6 captures this trend by listing the unit costs of various models of US fighter planes, bombers, aircraft carriers, and attack submarines. As seen in the table, an American P-47, adjusted for inflation, cost approximately $1.3 million per unit during World War II. By the second half of the 1970s, the Air Force was purchasing fighter jets at roughly $54 million a piece.

Much of these increases in costs have to do with advances in technology, such as jet propulsion and electronics.[107] Given the pace of technological change in the twenty-first century, it seems unlikely that costs will come down any time soon. Indeed, table 6 shows that this trend has comfortably outlasted the Cold War: throughout the mid 2000s, for instance, F-22s were bought at $143 million each—to mention nothing of the enormous sunk costs associated with the Pentagon's current F-35 program—while the United States' first Ford-class carrier, scheduled to be completed later this year, has a mind-boggling price tag of $13 billion attached to it, compared with the roughly

[106] Stanley and Pearton (1972), 101
[107] Ibid. 6

Table 6: The Rising Cost of Arms

Weapon System (Date of introduction in parantheses)	Estimated Unit Costs[a] (Millions of 2015 US $)[b]
Air Force Fighters	
P-47 (World War II)[1]	1.3
F-105 (1954-1963)[1]	20
F-15 Eagle (1976)[2]	54
F-22 (2005)[2]	143
Strategic Bombers	
B-29 (World War II)[2]	8.1
B-52 (1955)[2]	87
B-1B Lancer (1986)[2]	317
B-2 Spirit (1997)[2]	1,682
Aircraft Carriers	
Essex-class (World War II)[3]	1,000
USS Enterprise (1961)[1]	3,577
Nimitz-class (1975-2009)[4]	6,500
Ford-class (In production)[4]	12,887[c]
Attack Submarines	
Conventional power (World War II)[1]	63
Sturgeon-class (1967-1975)[5]	580
Los-Angeles-class (1972-1996)[5]	1,632
Virginia-class (2004-present)[4]	2,700[c]

Notes:

[a] The costs of these major weapons systems can vary substantially over time as modifications are made to original designs or products are outfitted with different technology. With regards to Nimitz-class carriers, for instance, the USS Ronald Reagan was procured in FY1995 for $4.45 billion, while the USS George H.W. Bush was procured in FY2007 at over $6 billion. As such, the reader is asked to note that all costs listed in this table are approximations.

[b] Unless otherwise noted, estimates are in 2015 US dollars.

[c] FY2017 US dollars.

Sources:

1: Robert E. Harkavy, The Arms Trade and International Systems, (Cambridge: Ballinger Publishing Company, 1975) 47

2: United States Air Force Fact Sheets

3: Philip A. St. John, *USS Essex CV/CVA/CVS-9*, (Nashville: Turner Publishing Company, 1999) 10

4: Congressional Research Service Reports

5: American Federation of Scientists

$1 billion required to construct its Essex-class World War II predecessor. Ultimately, although the collapse of the Soviet Union brought about significant structural changes to the arms trade, some trends, like the rising cost of weapons, remained.

THE POST-COLD WAR ERA: 1991 TO PRESENT

The dissolution of the Soviet Union in December 1991 provided a definitive end to the Cold War. As the world adjusted to the new political environment, so, too, did the international arms trade. The volume of exports dropped precipitously from their Cold War highs, the United States emerged as the world's sole superpower, and, by and large, cost replaced ideology as the determining factor for arms deals in a manner sometimes reminiscent of the trade in the industrial era. Additionally, today's arms transfer system has been influenced by a variety of political and economic shocks: the Gulf War in 1991, multiple global economic crises, and the onset of the Global War on Terror. This section will continue using SIPRI data to describe the evolution of the arms trade in the post-Cold War era, focusing again on shifts in suppliers, the volume of exports, the structure of the arms industry, and the flow of arms transfers.

First, the most conspicuous change to the arms transfer system in the wake of the Cold War was the collapse of the Soviet Union as the world's preeminent supplier of arms. More specifically, despite having inherited 71 percent of the Soviet Union's defense industry, the Russian arms industry throughout the 1990s was "characterized by an extreme degree of over-capacity and a strong dependence on exports, both of which [were] primarily the result of the collapse of domestic arms procurement that began in

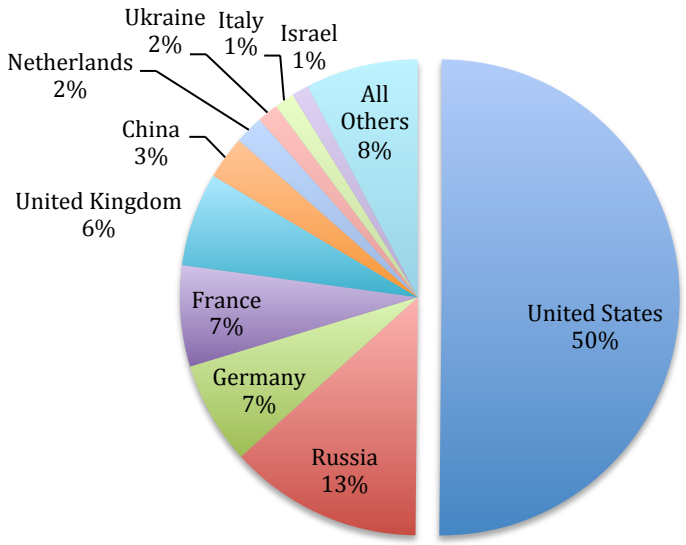
1992."[108] Indeed, by the end of 1993, 70 percent Russia's defense manufacturers were idle, while still others sought to convert their productive capabilities from military to civilian goods.[109] Of those still active throughout the 1990s, many were owed billions of roubles by the Ministry of Defence, which had failed to pay in full for the weapons it procured in that decade.[110] Ultimately, although the decline in Russian arms production had ceased by 1998 as a result of strong government efforts to increase funding for the industry, consolidation amongst firms, and competitiveness in arms exports, Russia's presence in the international arms trade for nearly a decade after the Cold War was nevertheless a fraction of its former self.[111]

American arms manufacturers, also equipped to meet Cold War-level demand for arms, were consequently well positioned to take over the majority of the former Soviet Union's market share, despite also suffering from a drop in global and domestic demand. Between 1992 and 2000, the United States enjoyed an unchallenged position as the top supplier in a largely unipolar arms transfer system, supplying half of all arms to global transfers. This dominance in the arms trade in the wake of the Cold War is reflected below in figure 6, which shows the market shares of the major arms suppliers over the same period. Putting numbers to the United States' market share, of the nearly $124 billion of arms exported from 1991 through 1995, the US was responsible for approximately $63 billion; from 1996 to 2000, American exports accounted for $60 billion of the $125 billion total. Moreover, at the firm level, of the 100 largest arms-

[108] Stohl and Grillot (2009), 26; Sköns and Weidacher (2002), 351
[109] Stohl and Grillot (2009), 26; Sköns and Weidacher (2002), 346
[110] Cooper (2001), 318; This debt was estimated at 32 billion roubles in early December of 2000.
[111] Sköns and Weidacher (2000), 323

producing companies in 1998, 39 were American. They accounted for fully 56 percent of total arms sales among these top 100 companies.[112]

Figure 6: Post-Cold War Market Shares, by Supplier 1992-2000



Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

On the following page, table 7 provides a more complete overview of how the supply side of the market has changed since 1991. As discussed above, foremost among the shifts in suppliers is the fall of the Soviet Union/Russia from its position as the world's leading arms exporter. For instance, from 1991 through 2000, its market share hovered around 14 percent,[113] less than half of the 35-40 percent it had cornered throughout the Cold War. However, despite this drop in market share and the substantial

[112] Sköns and Weidacher (2000), 302; SIPRI's list of the top 100 arms-producing companies from 1989-2001 does not include Chinese and Soviet/Russian firms due to data restrictions.
[113] This figure is slightly inflated from the value given in figure 6 due to the inclusion of the Soviet Union's final arms exports in 1991, as noted in table 7. The author has included these exports for the sake of consistency in the number of years in each period on the table.

problems riddling its arms industry at the time, Russia undoubtedly remained the second-largest arms producer in the world, with a market share considerably higher than any other individual state's share over the same period. European firms, in contrast to Russian manufacturers, were robust and competitive, with thirty-eight companies on

Table 7: Post-Cold War Market Shares, by State

Country	1991-95	1996-00	2001-05	2006-10	2011-15
United States	50.9	48.1	30.1	29.5	32.8
Russia	13.8[a]	14.1	28.0	22.5	25.4
China	4.5	1.8	2.4	3.6	5.9
France	4.1	9.0	8.6	7.1	5.6
Germany	7.8	6.5	6.7	10.8	4.7
United Kingdom	5.8	6.7	5.5	4.1	4.5
Spain	0.5	0.8	0.3	2.6	3.5
Italy	1.1	1.5	2.2	2.1	2.7
Ukraine	0.5	2.0	1.6	1.9	2.6
Netherlands	1.9	1.9	1.5	3.0	2.0
Israel	1.1	1.1	2.7	2.2	1.8
Sweden	0.6	1.2	2.4	1.8	1.5
Canada	0.7	0.4	1.1	1.0	1.0
Switzerland	1.0	0.8	1.1	1.2	1.0
South Korea	0.2	0.2	0.5	0.9	0.7
All Others	*5.6*	*3.9*	*5.1*	*5.9*	*4.2*
Total	100.0	100.0	100.0	100.0	100.0

Note: [a] Figure includes Soviet arms exports for 1991, and Russian transfers thereafter.

Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

SIPRI's Top 100 list in 1998 based in Western Europe. These firms accounted for 36 percent of total arms sales among the Top 100.[114] The strength of Europe's arms industry is further reflected in their exports: as shown in the table, collectively, the United

[114] Sköns and Weidacher (2000), 302; By country, the breakdown is as follows: UK (13), France (11), Germany (6), Sweden (3), Italy (2), Switzerland (2), and Spain (1).

Kingdom, France, and Germany provided between 18 and 22 percent of arms to foreign buyers during the two periods in the 1990s.

The last major supplier in the 1990s was China, with arms exports composing 4.5 percent of global transfers from 1991-95. Although the country has in recent years become one of the biggest suppliers of the post-Cold War era, its market share dropped significantly in the mid 1990s and early 2000s. As was the case during the Cold War, the Chinese defense industry in the 90s was producing considerably antiquated weaponry that was largely uncompetitive when brought to the international market.[115] In 2000, for instance, a military commander in Pakistan, China's biggest customer over the previous ten years, stated publicly that the latest Chinese combat aircraft would be useful only as a "stopgap."[116]

Nevertheless, in each five-year period since 1991, these top six arms producers—the United States, Russia, the United Kingdom, Germany, France, and China—have consistently supplied the world with roughly four-fifths of its foreign-based defense equipment, providing a low of 78 percent in 2006 to 2010 and a high of 87 percent in the years immediately following the end of the Cold War. Accompanying these producers are a host of smaller suppliers, the majority of which are located in Western Europe. Notably, of the fifteen biggest arms-exporting states listed in the table, twelve (excluding Russia, China, and Ukraine) have advanced, developed economies, a fact reflective of the wealth that has historically been required to achieve the economies of scale necessary to be competitive as an arms producer.

[115] Hagelin et al (2001), 329-330
[116] Ibid. 330

Having already discussed Russia and China, Ukraine's presence on the table, then, bears some explanation. In short, as was the case for Russia, Ukraine inherited a substantial portion of the former Soviet Union's defense industry: approximately one-fifth of the Soviet Union's total output and 15 percent of deliveries of end-product weapons were handled by Ukraine prior to its independence in 1991.[117] Moreover, this was in addition to simply acquiring a sizeable portion of Soviet military equipment, much of which has since been sold abroad.[118] Thus, since the end of the Cold War, Ukraine has had a significant defense industrial base from which to work.

Since the 1990s, market shares have shifted quite substantially. As was mentioned earlier, already by 1998, in the aftermath of a financial crisis, the Russian arms industry had begun to rebound as a result of strong government initiatives to strengthen its defense industry.[119] This change is reflected in Russian exports since the turn of the millennium, shown in table 7: during the period 2001-2005, Russia accounted for 28 percent of global transfers. As of the latest five-year period, Russia remains the second largest producer of arms in the world and the source of a quarter of all internationally traded weapons. Like China, the Russian arms industry has more recently suffered from both domestic and foreign concern over its poor quality controls and defective products, impeding Russian exports from rising further.[120]

The market share of the other top-tier supplier of this era, the United States, declined drastically after the 1990s (when it was 50 percent), and has since 2001 centered around 30 percent, which was nevertheless sufficient to allow it to retain its position as

[117] Cooper (1997), 259
[118] Anthony, Wezeman P., and Wezeman S. (1997), 275
[119] Cooper (2001), 317
[120] Holtom, Bromley, and Wezeman (2008), 299

the world's largest arms exporter. Much of this decline has to do with negative changes in demand from the Middle East and East Asia in the late 90s, a consequence of political and economic shocks that will be discussed below when we shift focus to the recipient side of the arms trade. These regions were destination to a large portion of US exports and accounted for a huge percentage of global arms deliveries in the mid 1990s, with the Middle East and Asia at 25 and 48 percent, respectively, in 1996, for instance.[121] Moreover, US exports have also been suppressed more recently by growing negative public sentiment towards the arms trade: in the mid 2000s, "concerns were expressed in the US Congress about proposed arms sales and military aid to states in both Asia and the Middle East," in addition to the imposition of arms export restrictions amounting to partial and blanket embargoes on some 25 countries by 2008.[122]

Similarly, European producers in the past decade have faced a variety of political impediments, mostly at the transnational level, to the free transfer of weapons, though the final decision on whether to export remains largely at the discretion of the national governments. As of April 2016, for example, 21 countries were subject to EU arms embargoes, while the EU Code of Conduct on Arms Exports has further disciplined member states' arms transfers in the twenty-first century.[123] Consequently, while the United Kingdom, France, and Germany maintained their combined share of roughly 20 percent throughout the 2000s, as shown in table 7, they have in the last five years seen this figure drop to 15 percent. Additionally, of the three, the UK's arms sales since 1991

[121] Anthony, Wezeman P., and Wezeman S. (1997), 274; These figures do not include the developed world as a 'region.'
[122] Holtom, Bromley, and Wezeman (2008), 296
[123] Ibid. 302; SIPRI *Arms Embargoes Database* (2016)

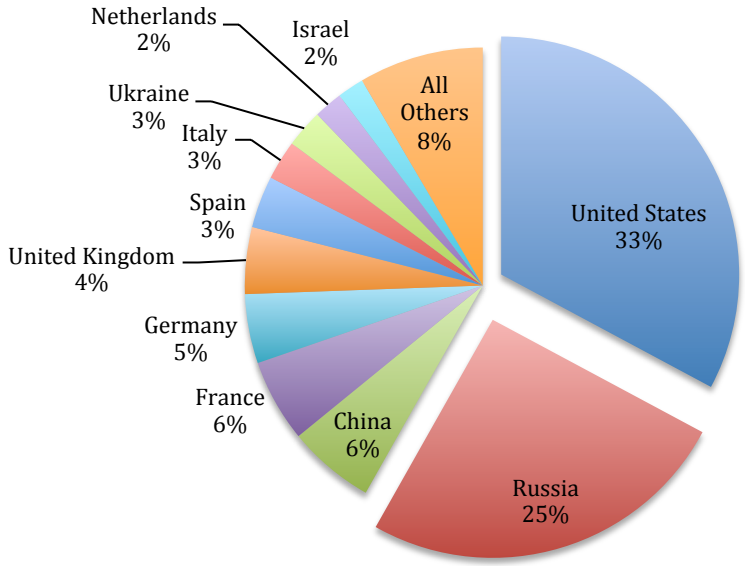
have been the lowest, in general constituting around three-quarters of French or German exports.

Finally, China's role as an arms supplier has increased since the late 90s. Between 2011 and 2015, it cornered 5.9 percent of the global arms market, more than any individual Western European state during the same interval, and enough to make it the third-largest arms exporter of this period. Today, the volume of its foreign arms sales remains comparable with the big three Western European producers mentioned above. Again, as was the case in the latter years of the Cold War, the growth of Chinese exports can be explained in large part by the replication of advanced defense equipment purchased in limited quantities from abroad. Indeed, in 2010, the "Russian Government, companies and media continued to voice concerns about China's copying of its weapon systems," particularly as this process increasingly places Russian arms in direct international competition with Chinese systems.[124] Notably, between 2003 and 2007, China received 94 percent of its major conventional weapons from Russia.[125]

Spain, Italy, the Netherlands, Ukraine, and Israel continue to serve as smaller suppliers of arms in the twenty-first century. On the following page, figure 7 shows market shares by state for the latest five-year period in which data is available, and can be compared with figure 6 from earlier to highlight the shifts in market shares among the world's principal arms suppliers.

[124] Holtom et al (2011), 276-277
[125] Holtom, Bromley, and Wezeman (2008), 299-300

Figure 7: Post Cold-War Market Shares, by Supplier 2011-2015



Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

In addition to shifts in suppliers, the volume of global arms transfers in the post-Cold War era has been significantly lower relative to Cold War levels. Referring back to figure 2 (page 35) from the previous section, arms exports declined rapidly after the early 1980s, during which over $40 billion worth of defense equipment was sent abroad each year. By 1994, exports had fallen to around $23 billion. After a spike in sales in the mid to late 90s, international arms transfers bottomed out at less than $18 billion in 2002, the lowest single-year value for the arms trade in some 40 years. Since then, however, exports have been climbing: in 2015, $28.6 billion of arms were sold to foreign customers.

By way of explaining these fluctuations, the political and economic events that have shaped the post-Cold War era are informative. To start, the defense industry in the 1990s experienced a profound decline in overall production as global military

expenditures and arms procurement plunged with the conclusion of Cold War tensions and the associated restructuring of the global security environment. For the first half of the 90s, exports accompanied this decline, although to a lesser extent. By the mid 1990s, however, "the USA and the main arms-producing countries in Western Europe increased their arms exports to compensate for the continuing decline or stagnation of domestic markets," which broadly explains the aforementioned spike in transfers in the second half of the decade.[126]

Additionally, the Gulf War in 1991 also contributed to this rise in exports: in response to Iraq's invasion of Kuwait and the enormous arsenal Saddam Hussein had amassed during previous decades, many Middle Eastern states remained concerned over the possibility of invasion despite the conclusion of the conflict. As a result, there was a widespread buildup of arms in the region throughout the 1990s, with the United States serving as the Middle East's foremost supplier.[127] When global arms sales began falling again after 1997, it was in part because many Middle Eastern states felt they had "made sufficient arms purchases during the Gulf crisis to meet their security needs for the foreseeable future," and also in part because of economic crises in East Asia (1997) and South America (Argentina, 1999-2002).[128] As mentioned above, demand in Asia, in particular, had been strong at this time; the financial crisis in 1997 therefore acutely impacted the exports of many arms manufacturers. By 2002, with the onset of the Global War on Terror and the concomitant restructuring of the international security environment, the trend of declining exports reversed itself, with transfers since then steadily rising.

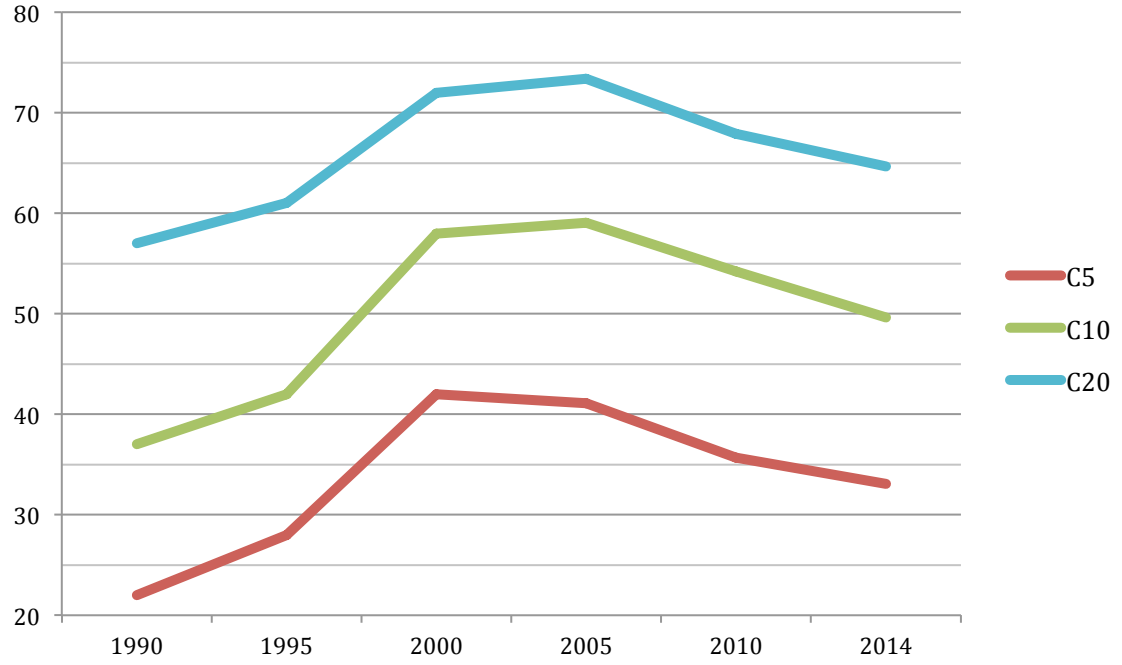
[126] Sköns and Baumann (2003), 374
[127] Stohl and Grillot (2009), 32-33
[128] Ibid. 25, 34

However, the fact that both foreign and domestic demand for defense equipment was much lower in the 1990s relative to earlier decades had a substantial impact on the structure of the arms industry. Arms manufacturers in the 90s needed to reconcile rapidly rising R&D and production costs (partially a result of the fourth trend from the previous section) with a shrinking export market, the latter of which has historically been the lifeblood of arms firms in the long run.[129] In order to make use of the substantial economies of scale present in modern arms production, a wave of mergers and acquisitions (M&A) swept across the industry in the 90s. Although consolidation was the most popular strategy employed by companies at the time, it was paralleled by several other responses, including exiting the arms industry, diversifying into civilian production, 'internal company rationalization,' and (often unsuccessful) efforts to increase exports.[130] This unprecedented restructuring of the industry is the third trend of the post-Cold War era that will be discussed. To start, figure 8 on the next page shows the concentration ratios of the world's largest defense firms using data from SIPRI's Arms Industry Database.[131]

As shown in the figure, in 1990 the five largest arms firms collectively produced just under one fifth of the Top 100's total output in terms of the financial value of their arms sales. By 2000, this figure had increased to over 40 percent, reflecting the arms industry's movement towards a more oligopolistic market structure in the 90s. Consolidation continued through the early 2000s, ultimately peaking around the middle of the decade. By 2005, twenty firms produced almost three-quarters of the arms

[129] Sköns and Weidacher (2002), 326
[130] Perlo-Freeman and Sköns (2008), 265; See also Sköns and Weidacher (2000), 299-301.
[131] As noted in the figure, due to the lack of reliable information available, Chinese firms are not included in SIPRI's database, and Russian ones only since 2002.

Figure 8: SIPRI Top 100 Concentrations 1990-2014



Notes

[1] C5 denotes the arms sales of the top 5 firms as a percentage of the total for the group of 100 in that year; C10, the top 10; and C20, the top 20.

[2] Chinese firms are not included in the SIPRI Top 100 "due to the lack of data on which to make even a reasonable estimate of arms sales for most companies. Based on the overall industry picture and on limited information on individual companies, it is nonetheless possible to state that at least [9 of the 10 largest Chinese companies] would almost certainly be in the Top 100 if figures for arms sales were available" (Perlo-Freeman and Wezeman, pp. 211-212). For similar reasons, Soviet/Russian firms are not included for 1990, 1995, and 2000, but are for 2005, 2010, and 2014. Data on Russian companies has been available since 2002. Thus, SIPRI concludes that at least since 2002, "apart from the omission of China, analysis of the companies in the Top 100 is sufficient to capture the major trends in global arms industry" (see Perlo-Freeman and Wezeman, pp. 206 for more information).

Sources:

1990: Ian Anthony et al, *Appendix 9A. The 100 largest arms-producing companies, 1990*. In Stockholm International Peace Research Institute, *SIPRI Yearbook 1992: World Armaments and Disarmament*, (New York: Oxford University Press, 1992) 392-397

1995: Elisabeth Sköns, Renaud Bellais, & SIPRI Arms Industry Network, *Appendix 8A. The 100 largest arms-producing companies, 1995*. In Stockholm International Peace Research Institute, *SIPRI Yearbook 1997: Armaments, Disarmament and International Security*, (New York: Oxford University Press, 1997) 262-266

2000: Reinhilde Weidacher & SIPRI Arms Industry Network. *Appendix 7A. Arms Industry Data*. In Stockholm International Peace Research Institute, *SIPRI Yearbook 2002: Armaments, Disarmament and International Security*, (New York: Oxford University Press, 2002) 357-363

2005, 2010, & 2014: SIPRI Arms Industry Database, Accessed 23 February 2016

manufactured by the SIPRI Top 100—the companies of which collectively "account for the majority of the global financial value of sales of military goods and services."[132]

American manufacturers were at the forefront of this M&A activity. Indeed, according to one finding in a 2002 US Department of Defense report, "what were 51 separate US defense business units in 1980" became 4 "large defense-focused firms" by 2001.[133] The rapid consolidation amongst American firms alone explains a large portion of the increase in concentration in the industry. As we have seen above, the list of the 100 largest companies has been, and is to this day, dominated by American firms: in 2008, for instance, 41 companies on the list were based in the United States, and accounted for 63 percent of the Top 100's arms sales.[134]

However, as shown in the figure, after the mid 2000s, this trend reversed itself, and the arms industry has since been moving towards greater competition. September 11th helped bring about not only an increase in foreign demand for arms (making exports more viable), but also an increase in domestic demand, particularly in the United States as it became involved in Iraq and Afghanistan.[135] With military expenditures rising steadily and government defense contracts flowing to arms manufacturers once again, the pressure to consolidate on many defense companies was greatly relieved. On top of this, increases in domestic procurement provided governments with an incentive to intervene in the arms industry in order to maintain competition among producers. Since the late 1990s, for instance, the US Department of Defense has moved to oppose several mergers and acquisitions, invoking anti-trust concerns: the acquisition of United Defense by

[132] Perlo-Freman and Wezeman (2014), 206
[133] Department of Defense (2002), 2
[134] Perlo-Freeman and Sköns (2008), 256
[135] Ibid. 266

General Dynamics in 1997; the merger of Northrop Grumman and Lockheed Martin in 1998 (which, today, are both among the five largest arms companies in the world); and the proposed acquisition of Newport News Shipbuilding by both General Dynamics and, later, Litton Industries, all serve as cases in point.[136]

Finally, shifting focus now to the demand for arms in the post-Cold War era, two trends are of note. First, referring back to figure 3 (page 38) from the previous section, it is evident that after a decline in demand among developing nations in the immediate aftermath of the Cold War, the 'third world' has, since the mid 2000s, once again become the destination of choice for arms exports. After procuring a low of $58 billion worth of defense equipment from abroad in the period 2000-2004, imports by the developing world increased by more than 75%, reaching $102 billion in the latest five-year period, 2010-2014. By contrast, developed countries, which together imported a post-Cold War high of roughly $59 billion in the second half of the 90s, have most recently (in 2010-2014) procured just $37 billion from abroad.

Of course, since figure 3 does not include domestic procurement, it would be incorrect to conclude that the developing world is becoming rapidly more armed than the developed world. As we have previously established, developed economies, as home to the majority of the world's arms-production capacity, are able to acquire the majority of their defense equipment from domestic industries. Nevertheless, it is still striking that the developed world procured fewer arms from abroad in 2010-2014, a time of generally increasing arms production, than in any other successive five-year period since data was first collected in 1950. In other words, recently, arms seem to be traded less amongst the

[136] Sköns and Weidacher (2000), 305-306

producing nations themselves, and increasingly with developing states. The implications of this will be discussed in the next section.

Table 8: Top 10 Post-Cold War Arms Importers, by State

Period	Rank	State	Imports ($ Billions)	Percent Total
1992-2000	1	Taiwan (ROC)	16.275	7.4
	2	Turkey	16.206	7.3
	3	Saudi Arabia	14.549	6.6
	4	South Korea	12.446	5.6
	5	Japan	11.844	5.4
	6	China	10.423	4.7
	7	India	9.914	4.5
	8	Egypt	9.829	4.5
	9	Greece	9.618	4.4
	10	Israel	6.181	2.8
		All Others	*103.526*	*46.9*
		Total	220.811	100.0
2001-2010	1	China	23.907	10.6
	2	India	20.059	8.9
	3	South Korea	11.05	4.9
	4	Greece	10.074	4.5
	5	UAE	9.331	4.2
	6	Pakistan	7.898	3.5
	7	Australia	7.76	3.5
	8	United States	7.148	3.2
	9	Turkey	6.312	2.8
	10	Egypt	6.135	2.7
		All Others	*114.946*	*51.2*
		Total	224.62	100.0
2011-2015	1	India	20.107	14.1
	2	Saudi Arabia	9.932	7.0
	3	China	6.681	4.7
	4	UAE	6.553	4.6
	5	Australia	5.204	3.6
	6	Turkey	4.927	3.4
	7	Pakistan	4.722	3.3
	8	Viet Nam	4.115	2.9
	9	United States	4.108	2.9
	10	South Korea	3.761	2.6
		All Others	*72.780*	*50.9*
		Total	142.890	100.0

Note: Since the Soviet Union still exported a significant amount of arms in the year of its dissolution, the year thereafter—1992—was selected as the starting point for the table to ensure that the last of the Soviet Union's transfers did not influence importer rankings for the post-Cold War era.

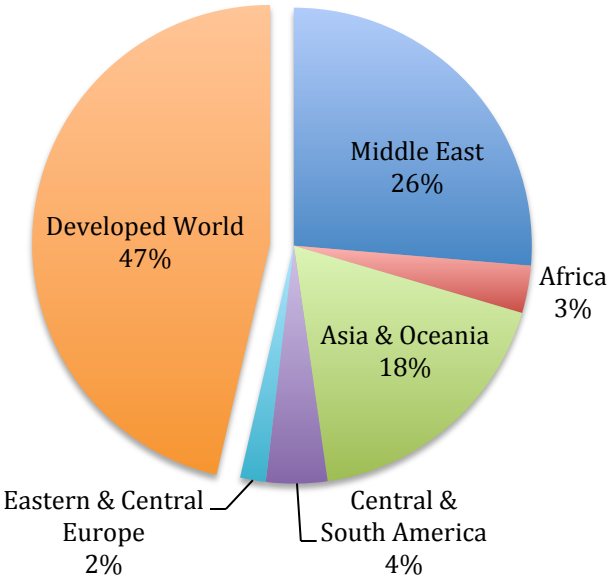
Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

The second development in demand is the shift in recipients of arms *within* the developing world. On the previous page, table 8 lists the world's biggest post-Cold War importers to date, providing a sense of the international flow of transfers since 1992. Notably, in every period, Asian and Middle Eastern countries have dominated the list. In the 1990s, for instance, the only country outside of these regions was Greece, which, since 2001, has been joined only by the United States and Australia.[137] The rise of Asia, in particular, as a consumer of defense equipment is evident in table 8. Since 2001, India and China have purchased nearly one fifth of all arms sold on the international market. Indeed, the rise of India as an importer is also particularly striking: fueled by a long-term and ongoing border conflict with Pakistan, India imported more arms in the five years since 2011 than it had in the entire decade prior, claiming 14.1 percent of global imports from 2011-2015. The incessant tension between India and Pakistan has contributed to the presence of both countries among the top 15 importers in the world for several decades now.[138] Lastly, owing in part to recurrent conflicts in addition to oil wealth, demand for arms in the Middle East has remained strong, with Saudi Arabia emerging in 2011-2015 as the world's second largest weapons importer. Its current conflict with Yemen, discussed at the beginning of the paper, has made Saudi Arabia a lucrative market for Western arms in recent years. The UAE, Egypt, and Turkey have all also been prominent Middle Eastern importers in the post-Cold War era, as the table shows.

On the following page, figures 9 and 10 show imports by region in the 1990s and in the most recent five-year period. Comparison of the two figures reflects the trends suggested by previous table 8: namely, the growth of Asia and the continuing importance

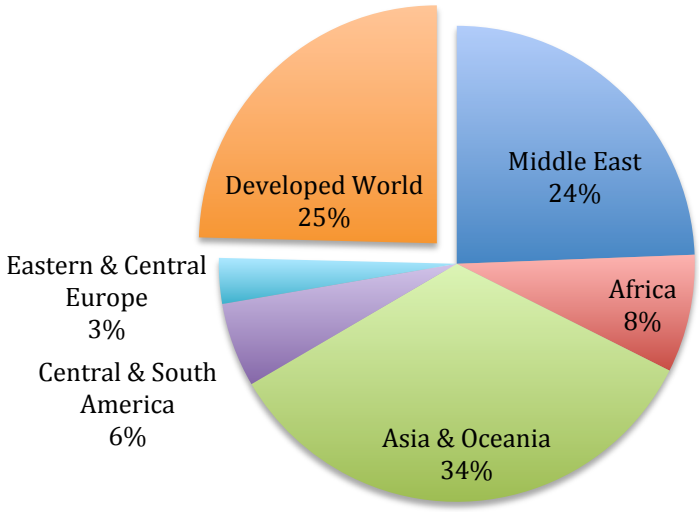
[137] That is, assuming Australia is considered part of the developed world as opposed to Asia & Oceania.
[138] Hagelin et al (2002), 380-382

FIgure 9: Post-Cold War Arms Imports, by Region 1992-2000



Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

Figure 10: Post-Cold War Arms Imports, by Region 2011-2015



Source: SIPRI Arms Transfers Database, Accessed 05 March 2016

of the Middle East as a destination for exports. For instance, while Asia & Oceania purchased approximately 18 percent of arms sold abroad in the 1990s, demand in the region has since then nearly doubled, with 34 percent of arms transfers in the last five years flowing to Asia. The Middle East, similarly, has consistently served as the destination for around a quarter of the world's arms transfers, as shown in figures 9 and 10. Ultimately, as was the case during the Cold War, as the volume of exports increased in the 2000s, the flow of arms has tended towards the developing world. Indeed, in the last five years, 75 percent of arms transfers have gone to developing countries, compared to 53 percent in the 90s.

IV. POLICY IMPLICATIONS AND CONCLUDING REMARKS

The arms trade may be ugly, but it is inescapable. Nations want to defend themselves and will buy weapons to do so. Rather than trying to abolish the trade, it makes more sense to improve it, make it open, transparent and efficient.[139]

-Joe Roeber, "Hard-Wired for Corruption"

The export of arms deserves special attention over the trade in other goods because of the impact such transfers have on both human life and human welfare more generally. In identifying the drivers of change in the arms trade and the defense industry throughout history, this thesis contributes an explanation for the prevalence and often unrestrained nature of these exports.

The first half of the paper described the emergence of the private firm as the dominant mode of arms production, in addition to the proclivity of these manufacturers to tap into foreign markets in order to secure a steady, long-term source of revenue. The second half of the paper, which examined the trade since World War II, made it clear that arms production is once again increasingly in the hands of a few powerful private companies. Moreover, as the cost of arms continues to soar, the importance of exports as a means for these firms to cover rising production costs is unlikely to diminish in the foreseeable future. The US government's latest weapons program, for instance, is also the most expensive in history: RDT&E (research, development, test & evaluation) for the F-35 program contracted to Lockheed Martin was valued at over $55 billion in 2015, with total program costs exceeding $1.5 trillion.[140] It should come as little surprise to the reader, then, that "unlike the F-22A *Raptor*, the F-35 was designed for export from the

[139] Roeber (2005)
[140] Department of Defense (2015), 2

onset," nor should the irony of Lockheed Martin's company slogan be lost on the reader: "We never forget who we're working for."[141]

As was discussed in the previous section, the extent to which arms are exported carries with it substantial implications for the developing world, which, since at least the middle of the twentieth century, has been the destination for the majority of international weapons transfers. The debt incurred by developing countries as a result of such arms purchases, as well as the pervasive corruption concomitant with the trade, both serve as avoidable but significant barriers to the economic and social wellbeing of these states, which spend millions on gratuitous defense equipment instead of allocating these scarce resources to fund more development-essential programs such as infrastructure, education, and healthcare.

With this in mind, enhancing efforts to rein in the global arms trade and controlling, in particular, the ability of private manufacturers to peddle death around the world—with government complicity—seems to be the next logical policy step, even if this has historically met stiff resistance from all players involved in the trade. While producing countries are uninterested in losing access to lucrative foreign markets and, consequently, curbing their capacity for defense production by abstaining from the economies of scale present in the arms industry, importing countries cry foul as they lose the ability to purchase the means to defend themselves. Nevertheless, from a global perspective, greater transparency and more stringent application of export controls, licensing agreements, and end-user certificates would represent first steps towards a more prosperous and less violent world.

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[141] Bolkcom and Murch (2008), 1

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Appendix A: A Note On Data

There are two primary sources of data on the arms trade: the Stockholm International Peace Research Institute (SIRPI) and the US government's annual *World Military Expenditures and Arms Transfers* (WMEAT) report, originally published by the Arms Control and Disarmament Agency (ACDA). Since 1999, this has been published by various agencies within the State Department (most recently the Bureau of Arms Control, Verification and Compliance, or AVC), which absorbed ACDA at the turn of the century. Because the WMEAT reports go back only to the early 60s, include small arms, and were discontinued for some years in the early 2000s, the figures and tables in this paper from the Cold War section forward all use SIPRI data in order for values to be comparable and consistent across time. The SIPRI Arms Transfers Database contains data as far back as 1950 and includes only major conventional weapons, the primary focus of this paper.

Additionally, the reader must be aware that SIPRI does not document the financial values of arms deals, but rather attempts to more broadly capture the sales price of the actual weapons being traded. Owing to things such as offsets or outright corruption, the total costs of arms deals are often more than just the price of the arms. To this end, the Stockholm International Peace Research Institute uses a unique system to put a price to the cost of arms transfers known as Trend-Indicator Values (TIV). "Based on the known unit production costs of a core set of weapons," SIPRI TIV are consistent over time, with any changes being applied retroactively. The purpose of this unit is to ensure that data measuring the flow of arms is comparable across both time and regions. To illustrate how SIPRI TIV would value a delivery of arms, the following example is provided from SIPRI's website:

> In 2009, Germany delivered 6 Eurofighter combat aircraft to Austria. One Eurofighter is valued at 55 million SIPRI TIV. Therefore the delivery is valued at 330 million SIPRI TIV.

More information on how SIPRI TIV are constructed and the source of this explanation of it can be found here:

Stockholm International Peace Research Institute. (2016). *Explanation of the TIV Tables*. Retrieved March 05, 2016, from SIPRI Website: http://www.sipri.org/databases/armstransfers/background/explanations2_default

Information on and online copies of WMEAT reports can be found here:

Bureau of Arms Control, Verification and Compliance. (2015). *World Military Expenditures and Arms Transfers*. Retrieved March 23, 2016, from US State Department Website: http://www.state.gov/t/avc/rls/rpt/wmeat/

Appendix B: Regional Divisions

The regions below follow SIPRI's divisions found at Stockholm International Peace Research Institute. (2016). *Regional coverage*. Retrieved March 05, 2016, from SIPRI: http://www.sipri.org/research/armaments/milex/milex_database/regional_coverage

Developed World (IMF Advanced Economies)*

In all figures and tables involving the developed world as a 'region', the following countries were removed from their respective geographic regions and included only in this category.

(1950–):

Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, West Germany (FRG), Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, San Marino, Singapore, Spain, Sweden, Switzerland, Taiwan, United Kingdom, United States.

*(1990–)***:*

Czech Republic, Estonia, Israel, Latvia, Lithuania, Slovakia, Slovenia, South Korea.

*The IMF's 2015 list of advanced economies can be found at International Monetary Fund. (2015). *World Economic Outlook: Adjusting to Lower Commodity Prices.* Washington (October). 148

**Due to the mutability of developed/developing status, as well as the fall of the Soviet Union, several countries were added only after the Cold War period. Additionally, since the precise year in which a state may be considered "developed" can be contentious, this paper makes only two broad divisions. Nevertheless, the reader can be assured that the trends discussed and illustrated by figures in the main text are still present when using alternatives to the IMF's list.

Africa

Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Republic of Congo, Democratic Republic of Congo, Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe.

Asia & Oceania

Afghanistan, Australia, Bangladesh, Brunei, Cambodia, China, Fiji, India, Indonesia, Hong Kong, Japan, Kazakhstan, North Korea, South Korea, Kyrgyzstan, Laos, Malaysia, Mongolia, Myanmar (Burma), Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Taiwan, Tajikistan, Thailand, Timor Leste, Turkmenistan, Uzbekistan, Viet Nam.

Europe

Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechoslovakia (–1992), Czech Republic, Denmark, Estonia, Finland, France, Georgia, East Germany (GDR) (–1990), Germany (FRG), Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia (Former Yugoslav Republic of Macedonia, FYROM), Malta, Moldova, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, Ukraine, USSR/Russia, Yugoslavia (former, –1991).

Middle East

Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates, North Yemen (–1990), South Yemen (–1990), Yemen.

North America

Canada, United States.

South & Central America

Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela.